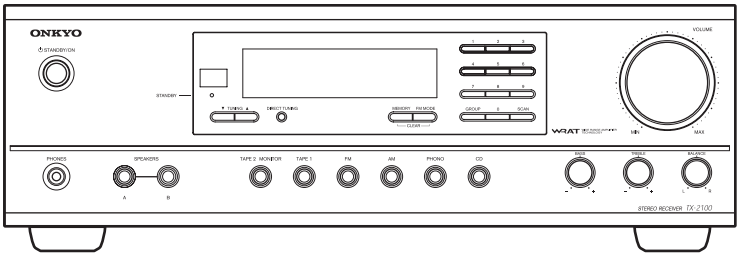
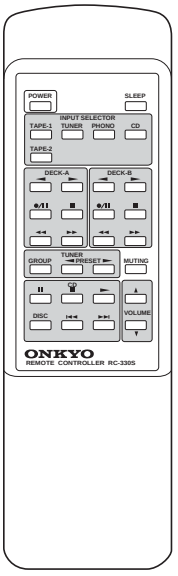
Ref. No. 3836
102004

ONKYO SERVICE MANUAL

STEREO RECEIVER

MODEL TX-2100





RC-330S

Black model

BMDD	120 V AC, 60 Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

ONKYO®
IMAGINATIVE SIGHT & SOUND

SPECIFICATIONS

Amplifier Section

Power Output	Front L/R 50 W + 50 W (8ohm, 20 Hz-20 kHz, FTC)
Dynamic Power	105 W + 105 W (4 ohm) 70 W + 70 W (8 ohm)
THD (Total Harmonic Distortion)	0.08 % (Power Rated)
Damping Factor	60 (Front, 1 kHz, 8 ohm)
Input Sensitivity and Impedance	150 mV/50 kohm (LINE) 2.5 mV/50 kohm (PHONO MM)
Output Level and Impeadance	150 mV/2.2 kohm (REC OUT)
Phono Overload	120 mV (MM 1 kHz 0.5 %)
Frequency Response	10 Hz-100 kHz/+1 dB -3 dB (TONE FLAT, CD, TAPE-1, TAPE-2/MONITOR)
Tone Control	±10 dB, 50 Hz (BASS) ±10 dB, 20 kHz (TREBLE)
SN Ratio	100 dB (LINE ,IHF-A) 80 dB (PHONO, IHF-A)
Speaker Impedance	4 ohm

Tuner Section

FM

Tuning Frequency Range	87.5 MHz-108.0 MHz
Usable Sensitivity	Stereo 17.2 dBf 2.0 µV(75 ohm IHF) Mono 11.2 dBf 1.0 µV(75 ohm IHF)
S/N Ratio	Stereo 70 dB (IHF-A) Mono 76 dB (IHF-A)
THD	Stereo 0.25 % (1kHz) Mono 0.15 % (1kHz)
Frequency Response	30 Hz-15 kHz/±1.5 dB
Stereo Separation	45 dB (1kHz)

AM

Tuning Frequency Range	530 kHz-1710 kHz
Usable Sensitivity	30 µV
S/N Ratio	40 dB
THD	0.70%

General

Power Supply	AC 120 V, 60 Hz
Power Comsumption	180 W
Stand-by Power Comsumption	1.35 W
Dimensions(W x H x D)	17-1/8" x 5-7/8" x 12-11/16" inches 435 x 150 x 322 mm
Weight	16.3 lbs 7.4 kg
Analog Inputs	PHONO, CD, TAPE-1, TAPE-2/ MONITOR
Analog Outputs	TAPE-1, TAPE-2/MONI
Speaker Outputs	4(SP-A, SP-B)
Phones	1

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. Replacing the fuse

This symbol located near the fuses indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.

Ce symbole indique que le fusible utlise est a rapide. Pour une protection permanente, n'untiliser que fusibles de meme type. Ce darnier est la qu le present symbol est appse.

CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252163	4A-UL/T-237,Fuse

2. To initialize the unit

This device employs a microprocessor to perform various functions and operations. If interference generated by an external power supply, radio wave, or other electrical source results in accident which causes the specified operations and functions to operate abnormally.
To perform a result, please follow the procedure below.

1.Press and hold down the TAPE 1 button, then press the DIRECT TUNING button.
2.After "CLEAR" is displayed, the preset memory stored in the memory, are initialized and will return to the factory setting.

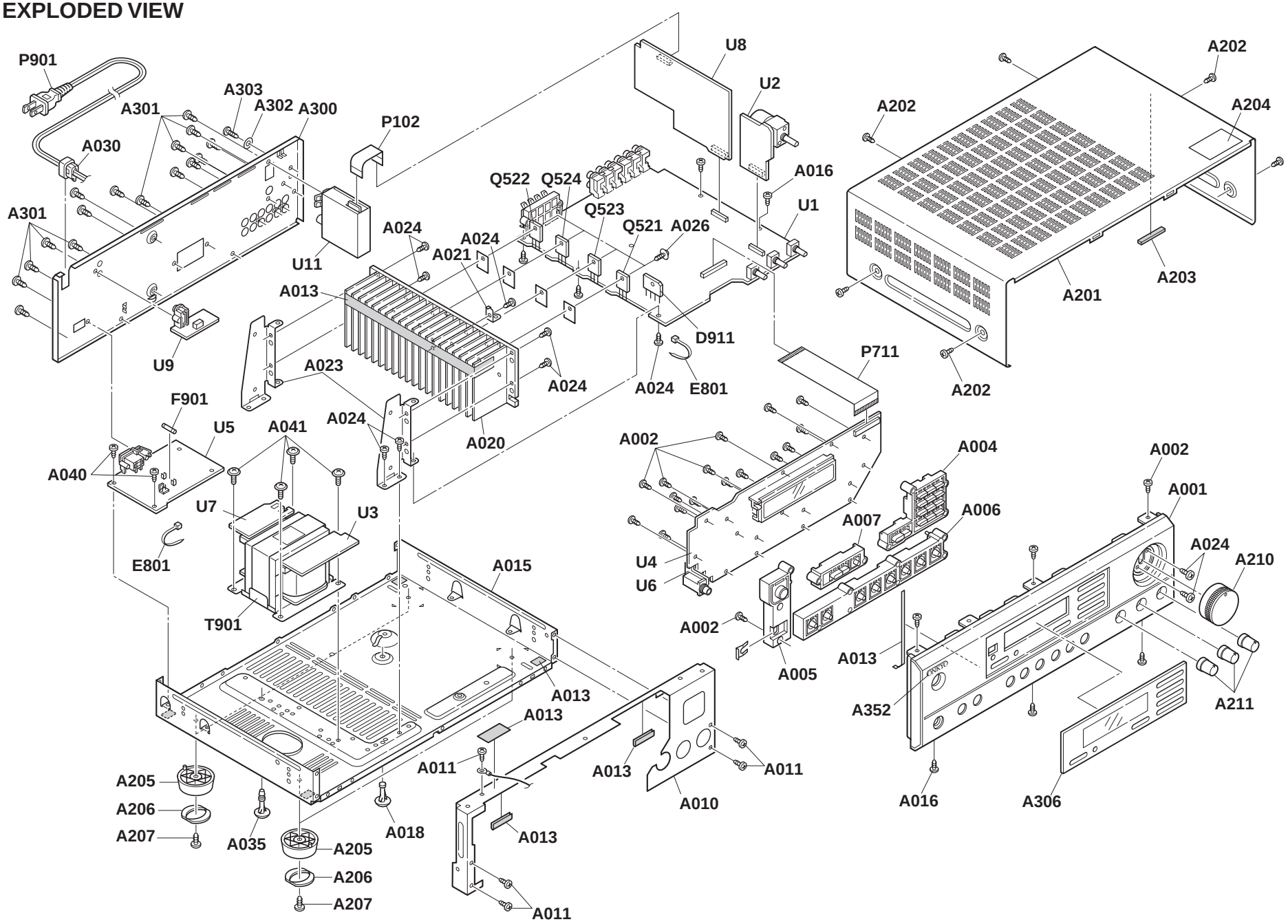
3. Safety-check out

(Only U.S.A. model)
After correcting the original service problem, perform the following safety check before releasing the set to the customer.
Connect the insulating-resistance tester between the plug of power supply cord and screw on the back panel.
Specifications: 3.3Mohm±10% at 500V.

4. Memory Preservation

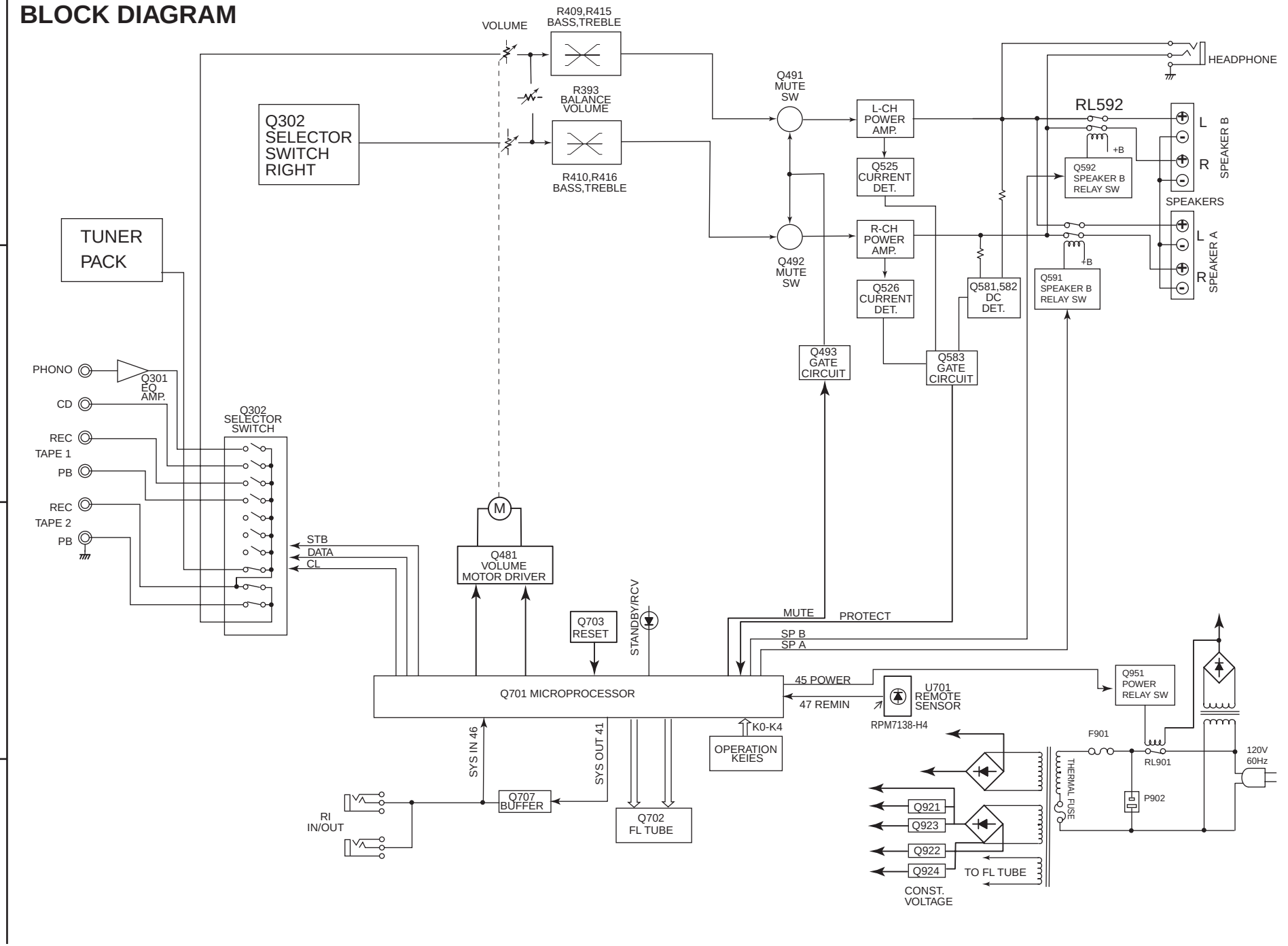
This unit does not require memory preservation batteries. A built-in memory power back-up system preserves the contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in order to charge the back-up system.
The memory preservation period after the unit has been unplugged varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of a few weeks after the last time the unit has been unplugged. This period is shorter when the unit is exposed to a highly humid climate.

EXPLODED VIEW

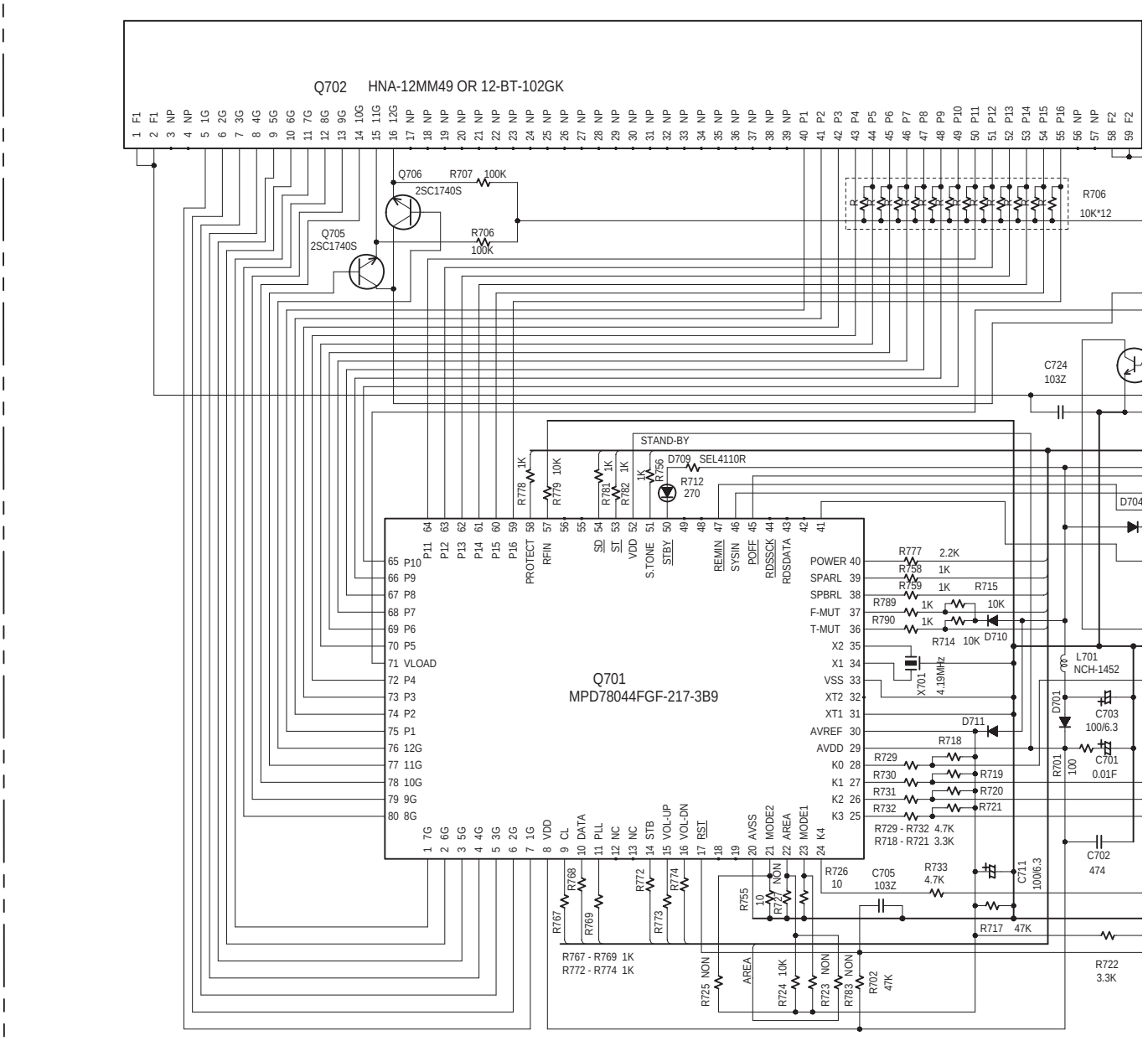


TX-2100

BLOCK DIAGRAM



SCHEMATIC DIAGRAM 1
DISPLAY SECTION



NOTE

- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) ⟨ ⟩ IS DC VOLTAGE. (NO INPUT SIGNAL)
- ELECTROLYTIC CAPACITORS (⊣+) ARE IN u F/WV.
- ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED.
  EX) 030›3pF 330›33pF 331›330pF 333›0.033uF
- ALL RESISTORS ARE IN OHMS 1/4WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
  EX) ⊓⊓⊓ PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

CAUTION

FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH FUSE OF SAME TYPE AND RATING INDICATED.

ATTENTION

AFIN D'ASSURER UNE PROTECTION PERMANENTE CONTRE LES RISQUES D'INCENDIE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MEME TYPE ET CALIBRATION COMME INDIQUE.

THIS SYMBOL LOCATED NEAR THE FUSE INDICATES THAT THE FUSE USED IS SLOW OPERATING TYPE FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,REPLACE WITH SAME TYPE FUSE. FOR FUSE RATING REFER TO THE MARKING ADJACENT TO THE SYMBOL

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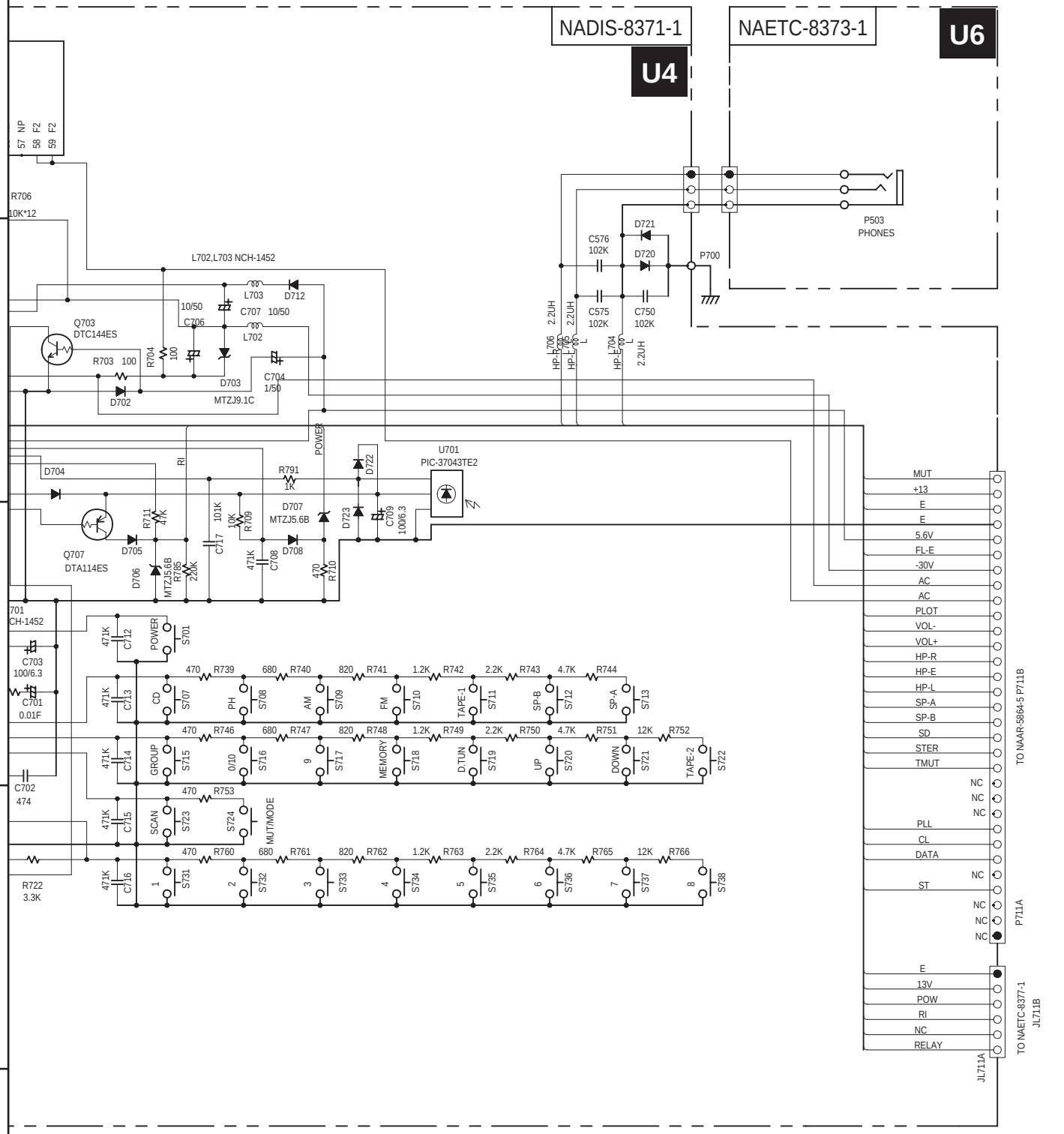

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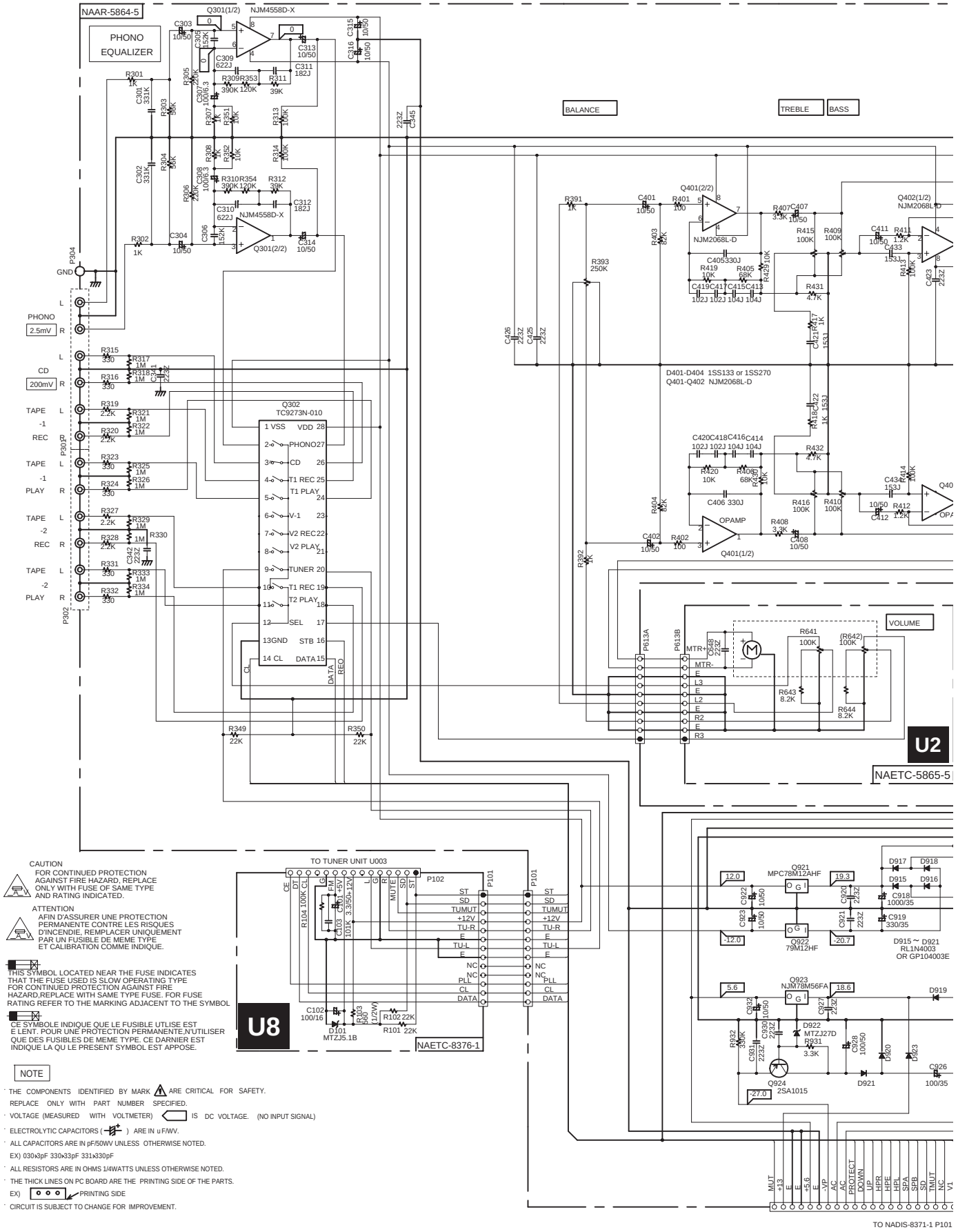
SCHEMATIC DIAGRAM 2
AMPLIFIER SECTION



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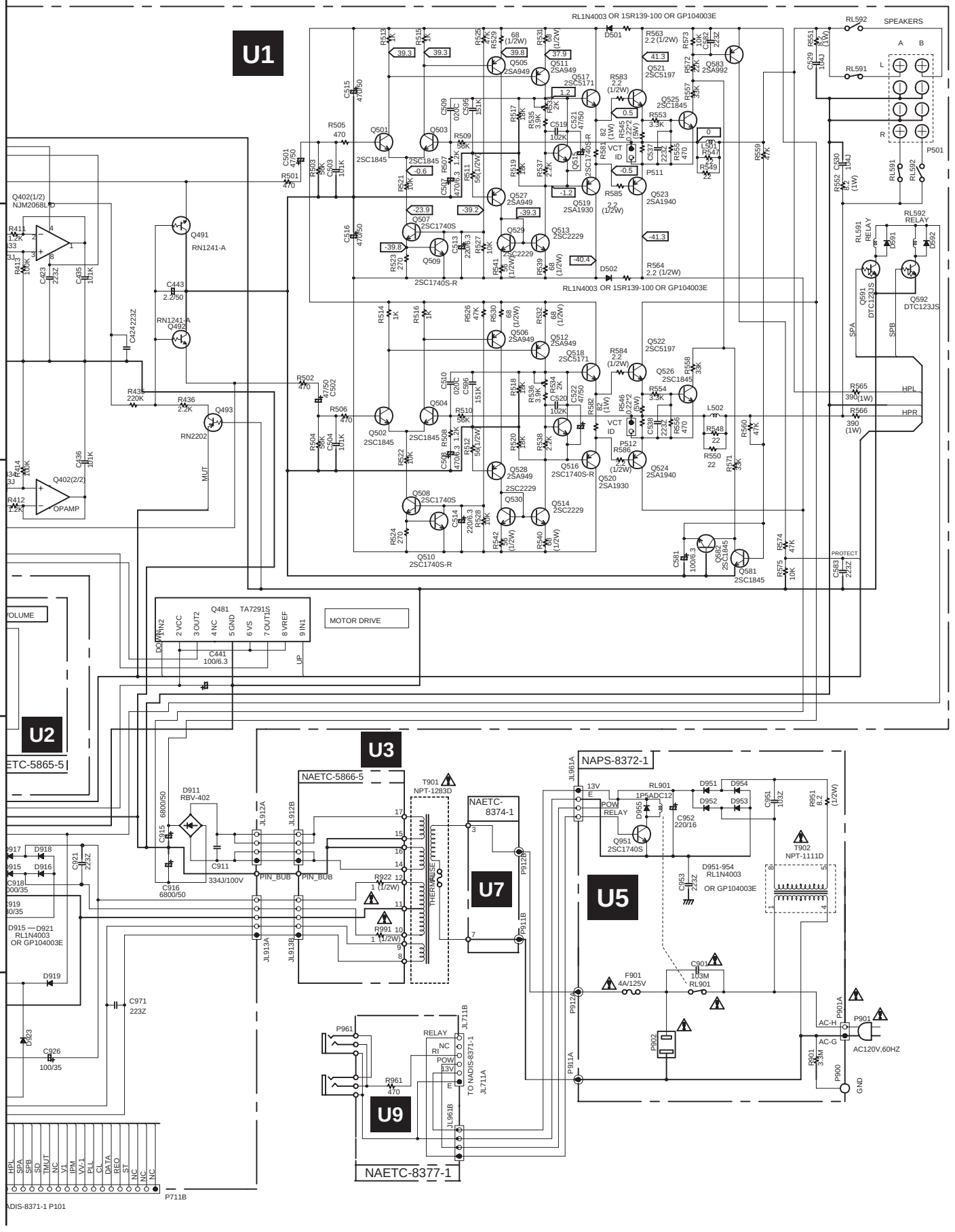
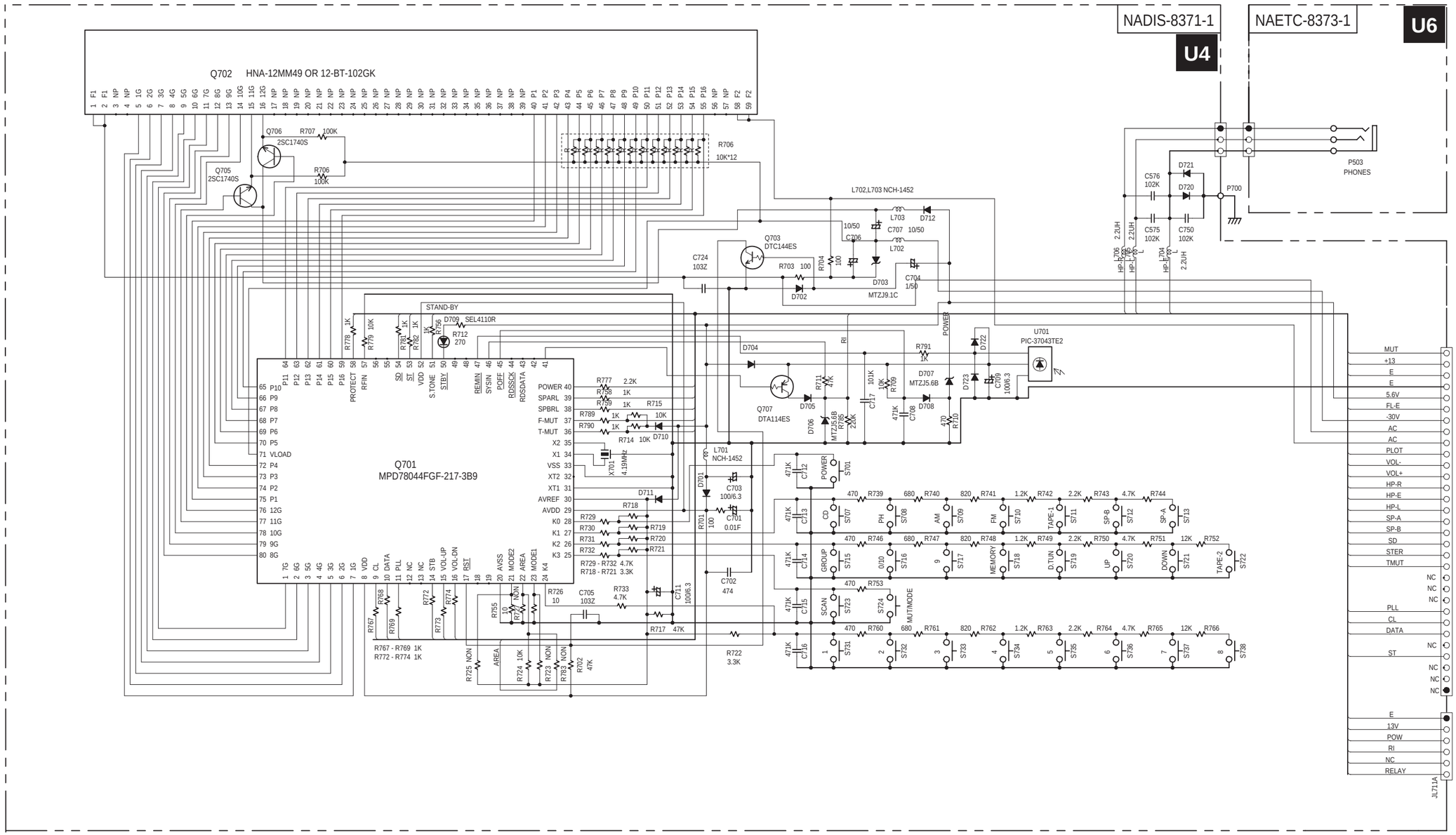


SCHEMATIC DIAGRAM 1

DISPLAY SECTION



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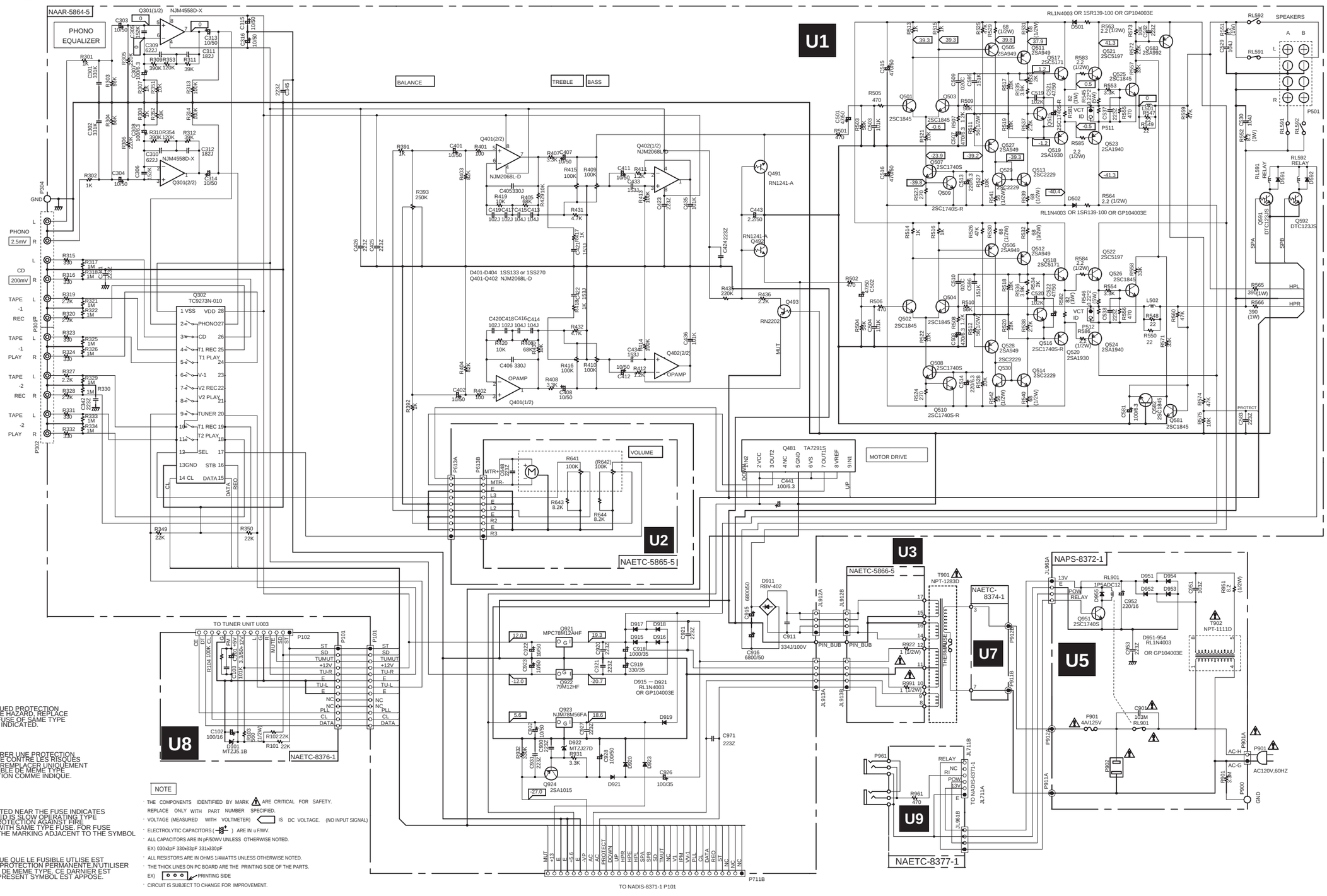
NAAR-5864-5
PHONO EQUALIZER
Q301(1/2) NJM4558D-X
Q301(2/2)
NJM4558D-X
BALANCE
TREBLE
BASS
Q401(2/2)
NJM2068L-D
Q401(1/2)
Q402(1/2)
NJM2068L-D
Q402(2/2)
OPAMP
Q491 RN1241-A
Q492 RN1241-A
Q493 RN2202
D401-D404 1SS133 or 1SS270
Q401-Q402 NJM2068L-D
Q302 TC9273N-010
PHONO
CD
TAPE -1 REC
TAPE -1 PLAY
TAPE -2 REC
TAPE -2 PLAY
TUNER
T1 REC
T1 PLAY
T2 PLAY
V-1
V2 REC
V2 PLAY
SEL
STB
VOLUME
U1
U2
NAETC-5865-5
U3
NAETC-5866-5
U4
NAETC-8374-1
U5
NAPS-8372-1
U7
U8
NAETC-8376-1
U9
NAETC-8377-1
Q481 TA7291S
MOTOR DRIVE
RL1N4003 OR 1SR139-100 OR GP104003E
SPEAKERS
RELAY
T901 NPT-1283D
T902 NPT-1111D
D911 RBV-402
Q921 MPC78M12AHF
Q922 79M12HF
Q923 NJM78M56FA
Q924 2SA1015
D922 MTZJ27D
D915 – D921 RL1N4003 OR GP104003E
TO TUNER UNIT U003
TO NADIS-8371-1 P101
P711B
TO NADIS-8371-1
JL711A
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JL912A
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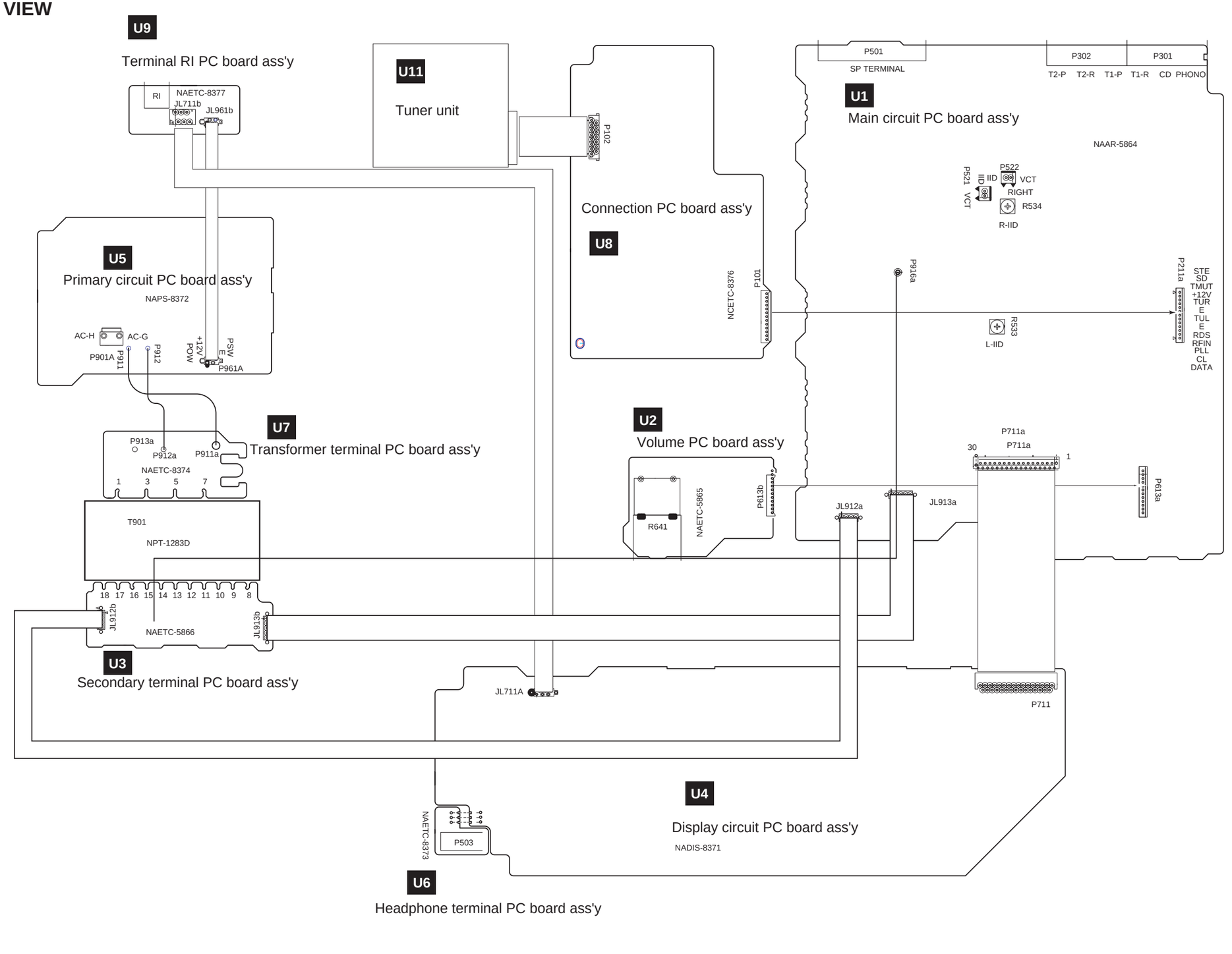
WIRING VIEW


A
B
C
D
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F
G
H
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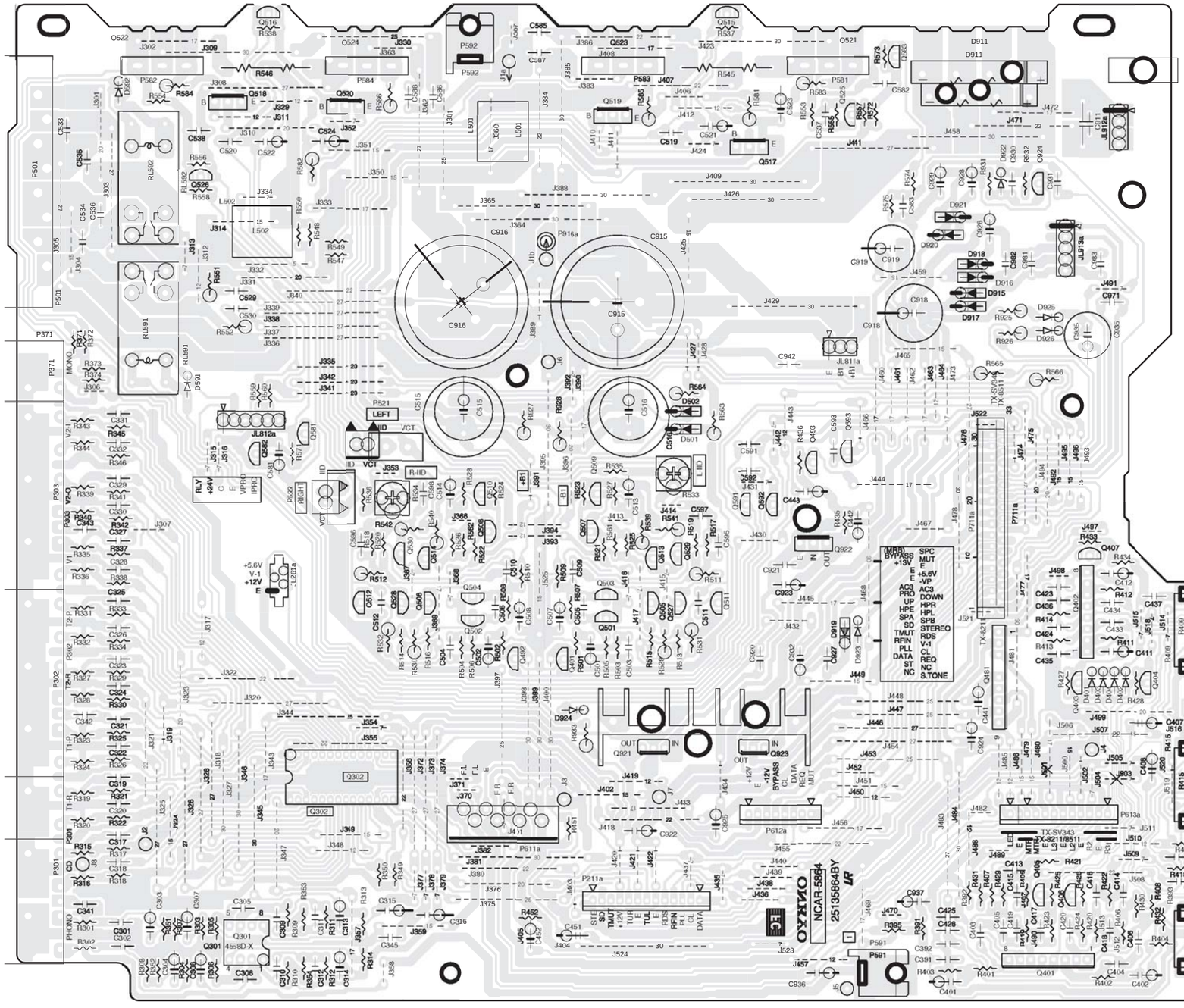
2
3
4
5
U9
Terminal RI PC board ass'y
RI
NAETC-8377
JL711b
JL961b
U11
Tuner unit
P102
U8
Connection PC board ass'y
NCETC-8376
P101
P501
SP TERMINAL
P302
P301
T2-P T2-R T1-P T1-R CD PHONO
U1
Main circuit PC board ass'y
NAAR-5864
P521
IID
VCT
P522
IID
VCT
RIGHT
R534
R-IID
P916a
P211a
STE
SD
TMUT
+12V
TUR
E
TUL
E
RDS
RFIN
PLL
CL
DATA
R533
L-IID
U5
Primary circuit PC board ass'y
NAPS-8372
AC-H
AC-G
P901A
P911
P912
+12V POW
PSW
E
P961A
U7
Transformer terminal PC board ass'y
P913a
P912a
P911a
NAETC-8374
1 3 5 7
T901
NPT-1283D
18 17 16 15 14 13 12 11 10 9 8
JL912b
NAETC-5866
JL913b
U3
Secondary terminal PC board ass'y
U2
Volume PC board ass'y
R641
NAETC-5865
P613b
JL912a
JL913a
P711a
30
1
P613a
JL711A
P711
U4
Display circuit PC board ass'y
NADIS-8371
NAETC-8373
P503
U6
Headphone terminal PC board ass'y

A B C D E F G H

1 2 3 4 5

PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE


P592
C585
C567
Q516
R538
Q515
R537
Q522
J309
R546
Q524
J330
J363
Q523
J408
J423
Q521
D911
R573
R583
P582
R584
J308
Q518
Q520
P584
J329
J311
J352
J351
J350
C538
C520
C522
C524
R556
Q526
R558
J334
L502
J333
J314
J313
J312
R549
R547
J332
J331
C529
C530
J339
J338
J337
J336
R532
J340
J335
J342
J341
P521
LEFT
MID
VCT
R-MID
L-MID
JL812a
Q582
Q581
J315
J316
RLY
+24V
C
E
VPRO
IPRO
+5.6V
V-1
+12V
E
JL261a
J353
R536
R534
C586
C514
R528
Q510
R524
+B1
J391
J395
J396
R523
R535
C513
Q509
Q591
R533
J414
C587
R541
R519
R517
C585
J413
R525
R539
Q513
Q529
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J417
Q527
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J368
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J451
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J434
J420
J421
J422
J435
J437
P611a
J382
J381
J380
J376
J375
J359
C315
C316
R452
J405
C452
J404
J524
P211a
STB
SD
TMUT
+13V
TUN
TUL
RDS
RFIN
PLL
DATA
CL
OUT
Q921
IN
Q923
-12V
BYPASS
REQ
MUT
D924
R933
J398
J399
J400
J322
J320
J344
J354
J355
J366
J372
J373
J374
J371
F.L
F.R
J370
J341
J451
J3
J7
J402
J419
J433
J418
C922
C925
J434
J420
J421
J422
J435
J437
P611a
J382
J381
J380
J376
J375
J359
C315
C316
R452
J405
C452
J404
J524
P211a
P612a
J455
J456
J439
J438
J436
C937
J470
R395
R391
C391
R403
C401
P591
J457
C936
J5
J523
Q922
C443
R435
R437
J430
J431
C592
Q592
Q591
J444
J467
J478
P711a
C921
C923
J445
J432
J468
D919
C920
C922
D923
J449
J448
J447
J446
J454
J453
J452
J451
J450
C824
C441
Q481
J481
J521
TX-9211
J497
R433
Q407
R434
C412
R412
C437
C423
C436
R414
C424
R413
C435
C433
R411
C411
Q403
R427
Q404
R428
J517
J506
J499
C407
J516
J507
J505
J504
J503
C458
R415
J519
J480
J479
J488
J487
J501
J500
J502
J482
P613a
J511
TX-SV343
TX-8211/8511
J510
J509
R417
C421
C422
J488
J486
C413
R421
R431
R407
R429
C415
C405
C419
C417
C423
C420
C424
C418
C406
C512
R432
R408
R383
R404
C403
R402
C402
Q401
C404
R401
J469
J508
R430
R422
C414
R418
R406
R426
R416
R405
R409
R427
R428
R425
R423
R410
R412
R411
R413
R414
R415
R417
R418
R419
R420
R421
R422
R423
R424
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R433
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R437
R438
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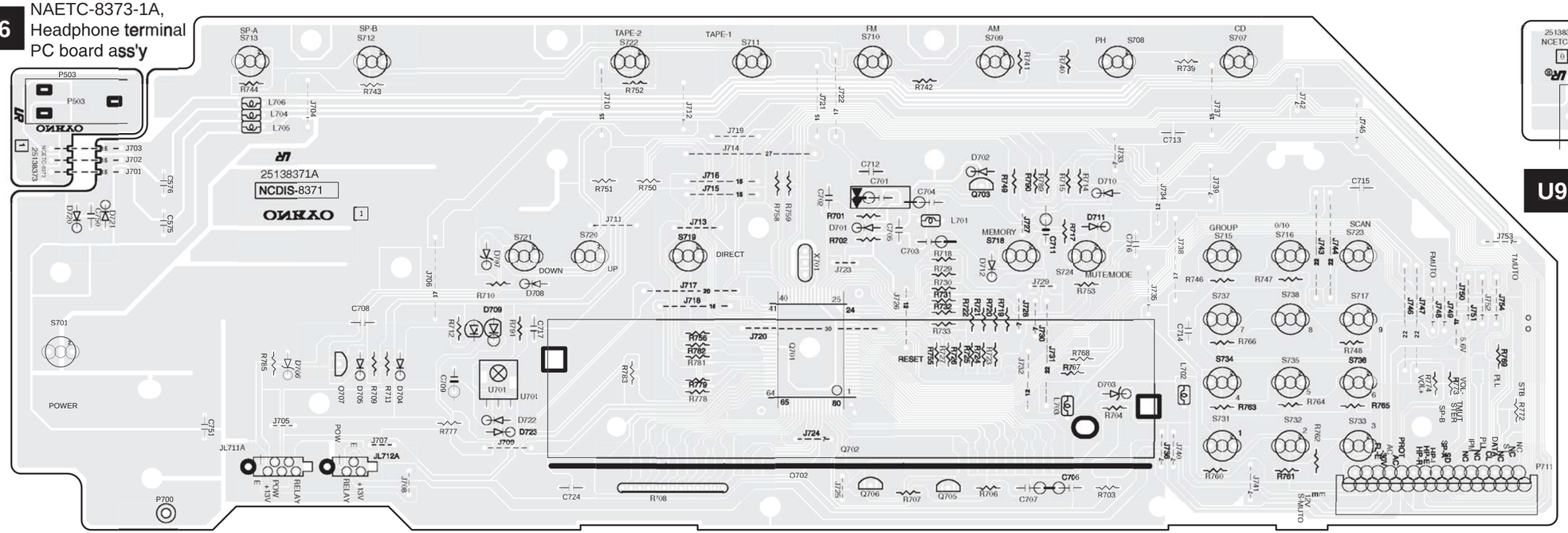
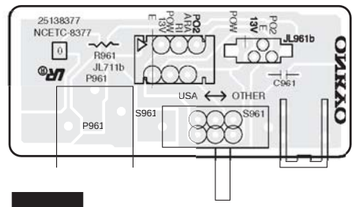
R440
R441
R442
R443
R444
R445
R446
R447
R448
R449
R450
R451
R452
R453
R454
R455
R456

PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE

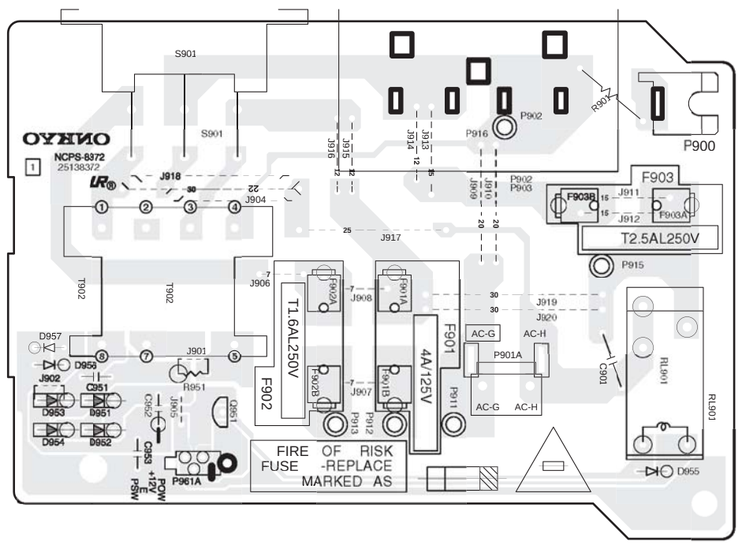
U6 NAETC-8373-1A, Headphone terminal PC board ass'y



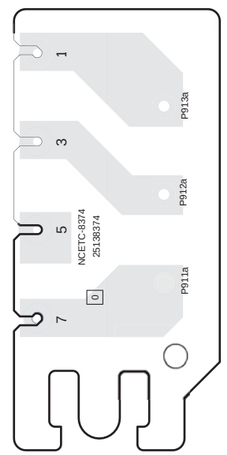


U9 NAETC-8377-1A,Terminal RI PC board ass'y

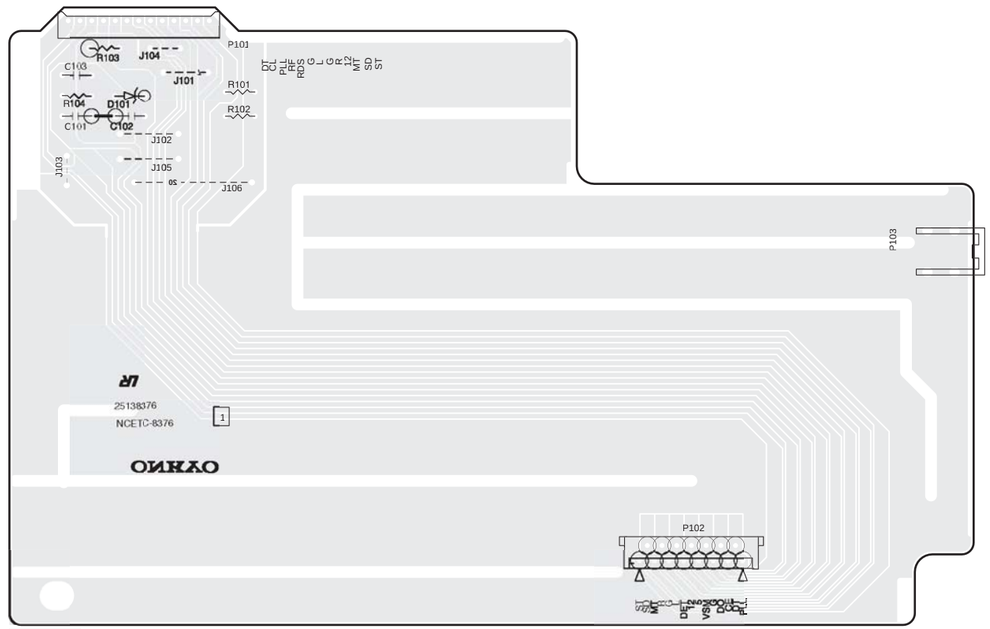
U4 NADIS-8371-1A,Display circuit PC board ass'y



U5 NAPS-8372-1A,Primary circuit PC board ass'y

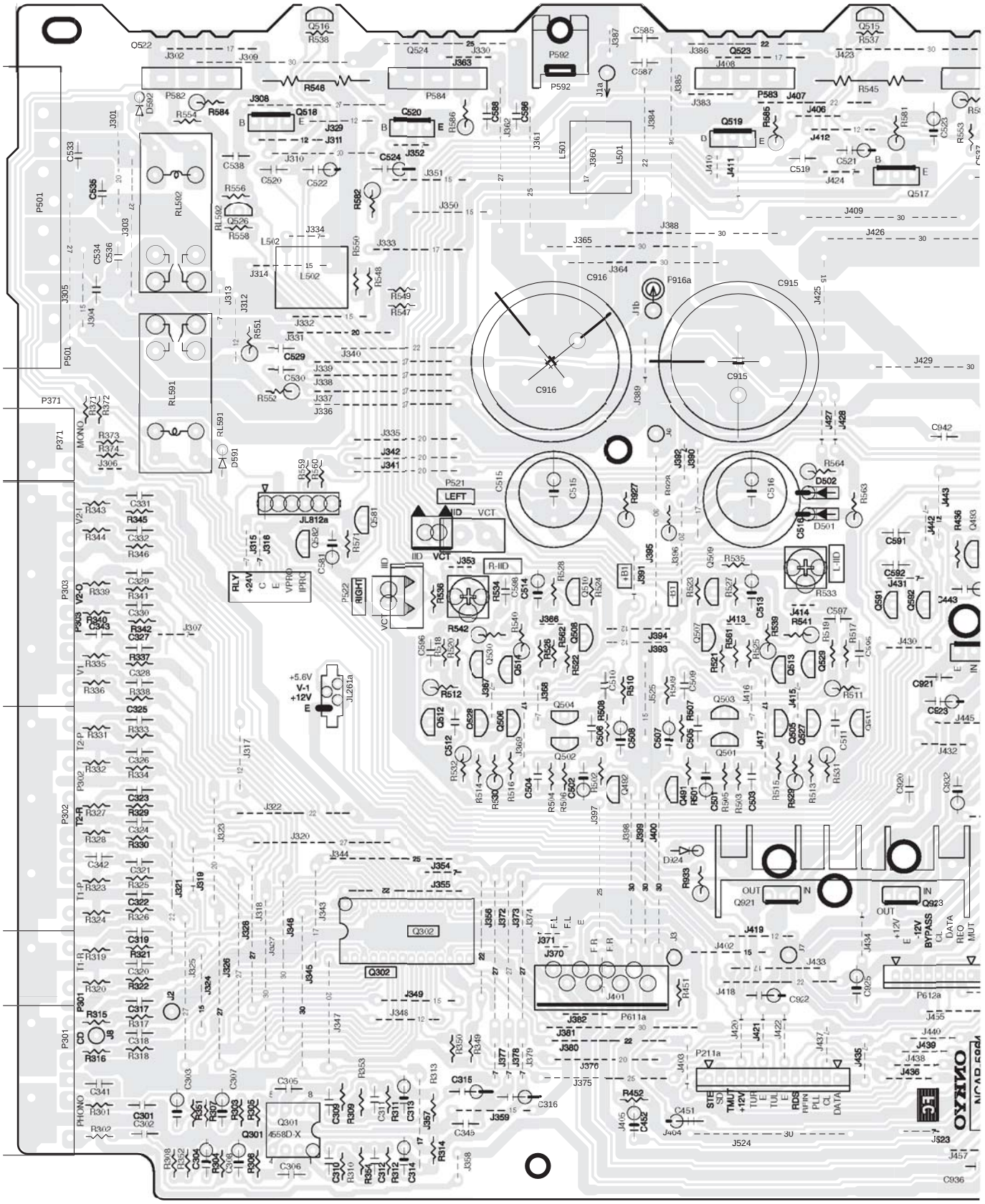


U7 NAETC-8374-1A,Transformer terminal PC board ass'y



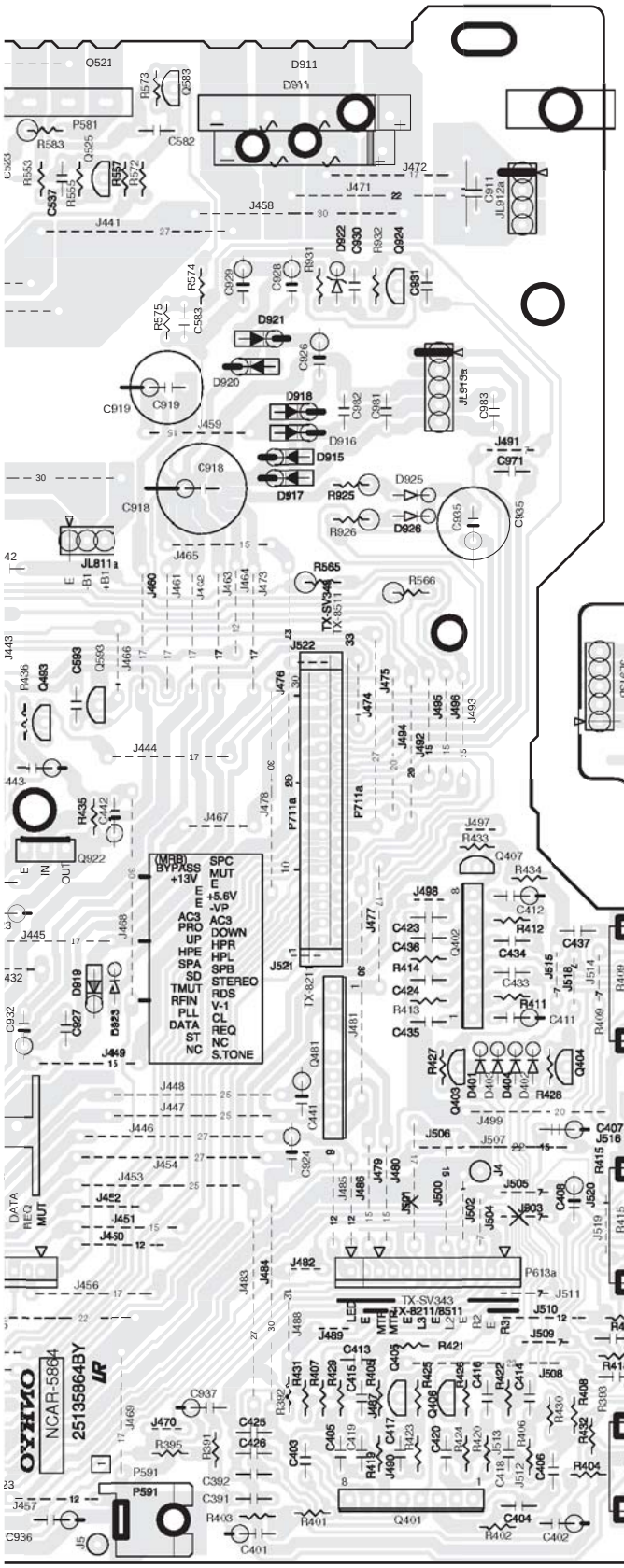
U8 NAETC-8376-1A,Connection PC board ass'y

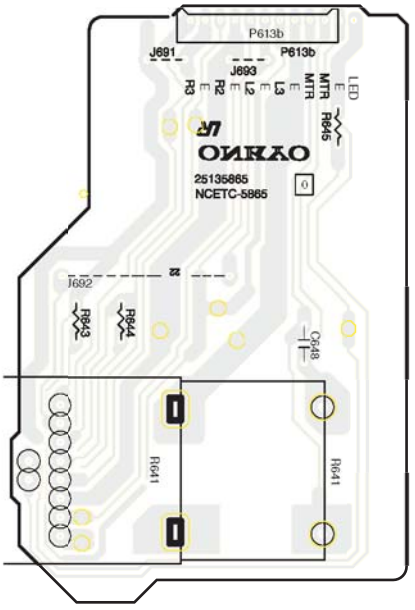
PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE



U1 NAAR-5864-5A,Main circuit PC board ass'y

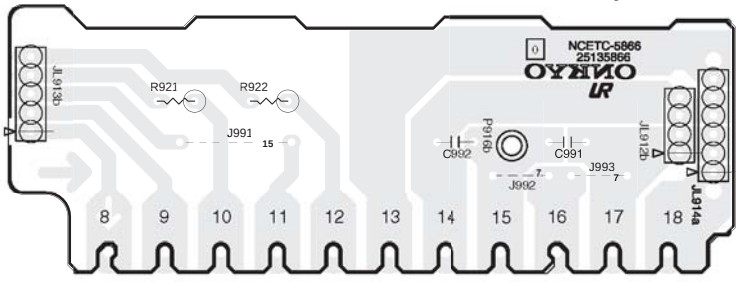
PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE





U2

NAETC-5865-5A,Volume PC board ass'y

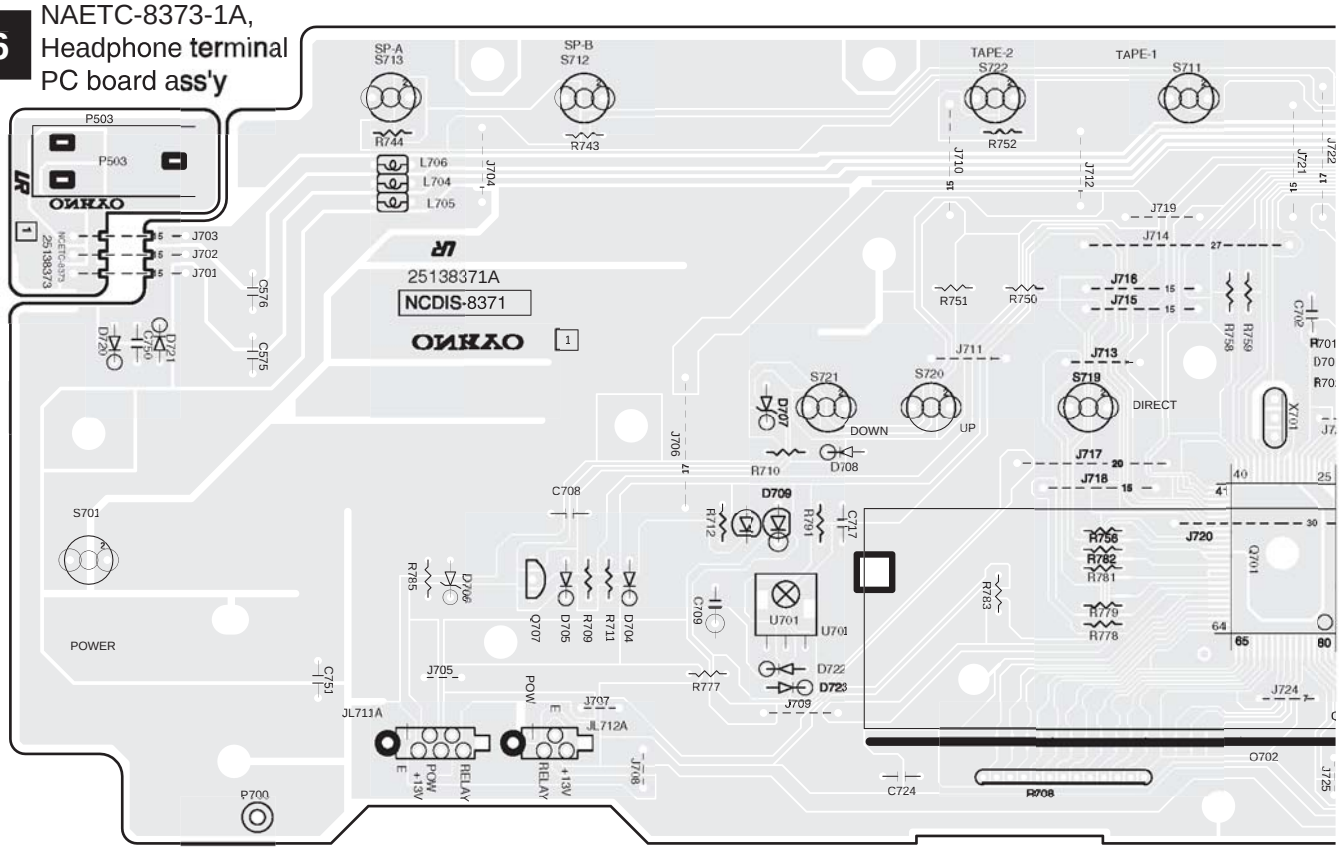


U3

NAETC-5866-5A,Secondary terminal PC board ass'y

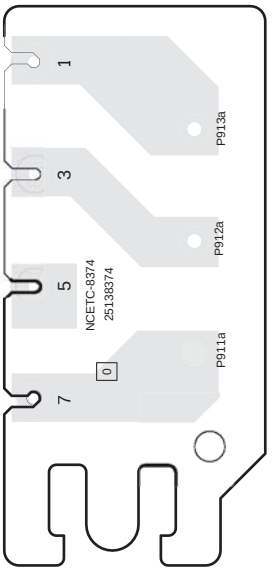
PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE

U6 NAETC-8373-1A, Headphone terminal PC board ass'y

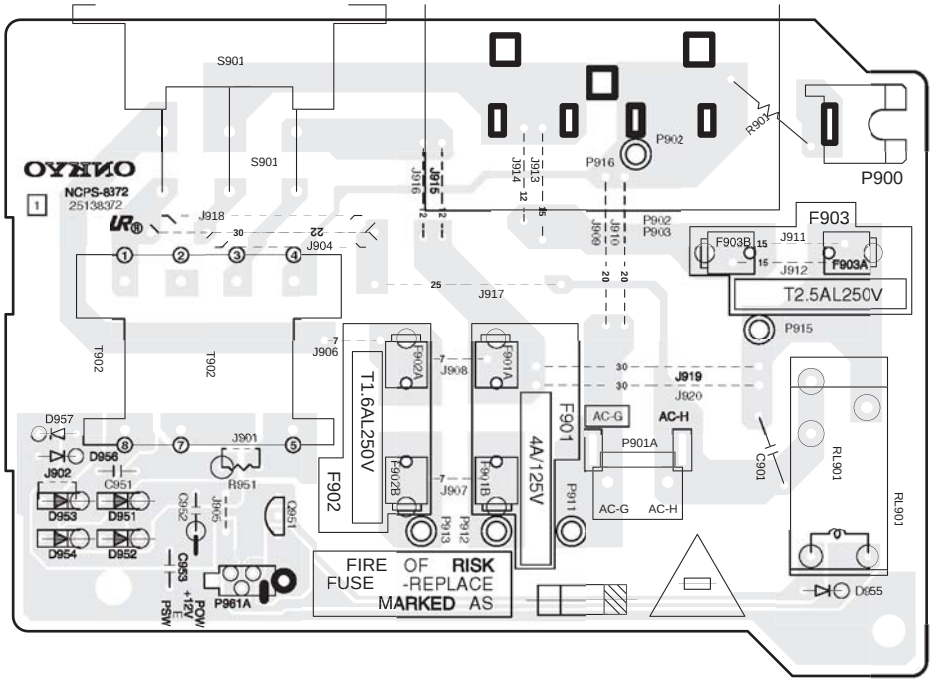


U4 NADIS-8371-1A,Display circuit PC board ass'y

U7

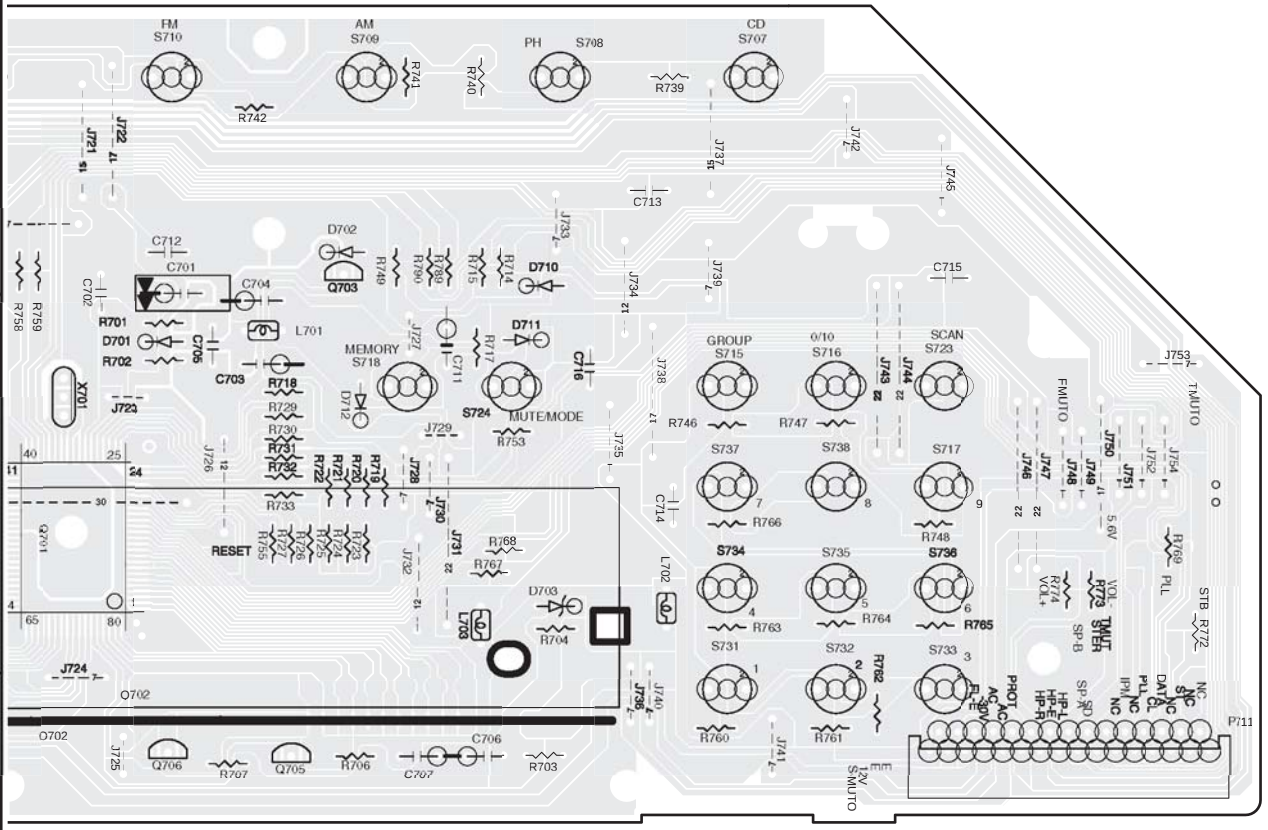


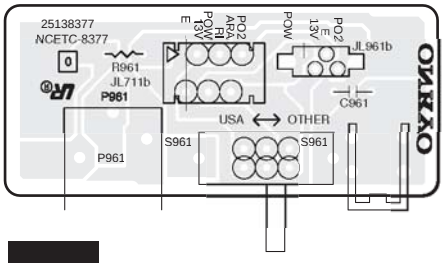
NAETC-8374-1A,Transformer terminal PC board ass'y



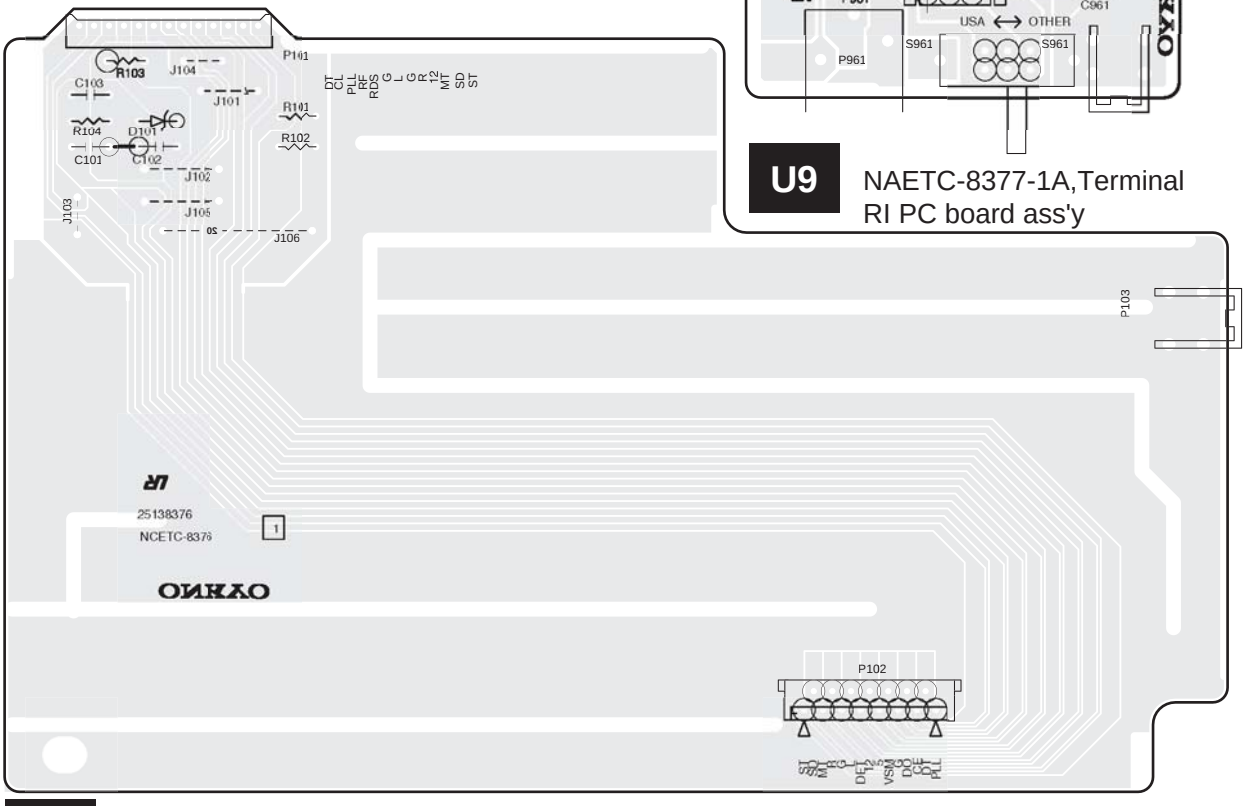
U5 NAPS-8372-1A,Primary circuit PC board ass'y

PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE





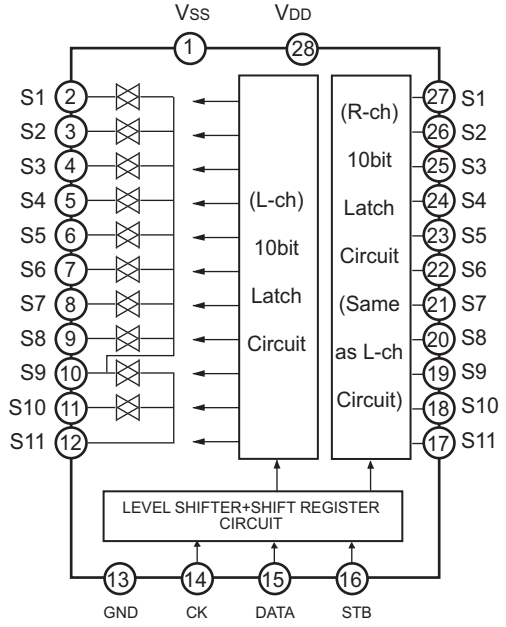
U9 NAETC-8377-1A,Terminal RI PC board ass'y



U8 NAETC-8376-1A,Connection PC board ass'y

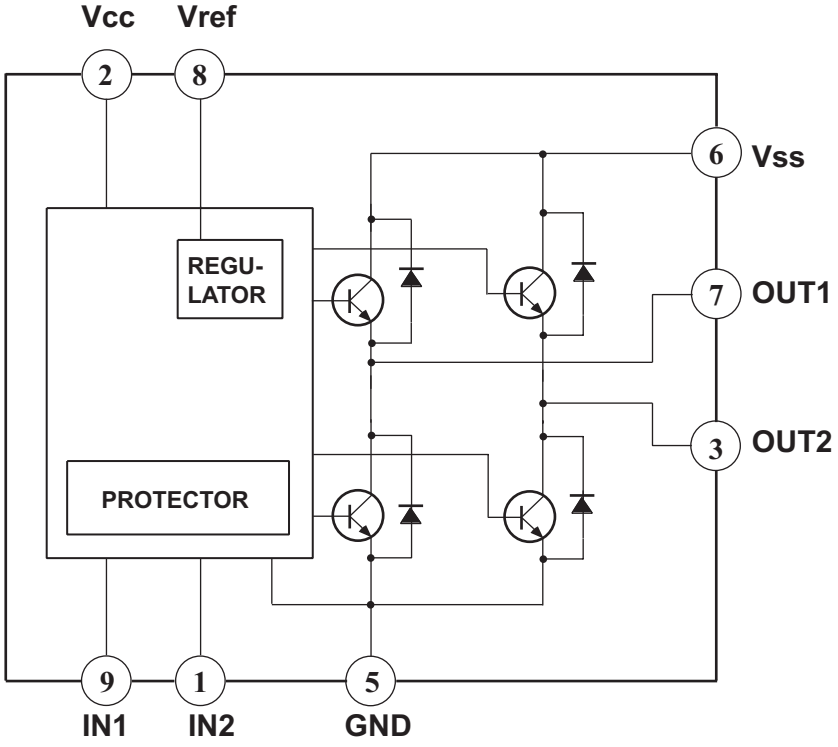
IC BLOCK DIAGRAMS AND DESCRIPTIONS

TC9273N-010(Analog Switch Array)



Pin No.	Symbol	Description
1	Vss	Negative power supply pin
13	GND	Digital ground pin
28	VDD	Positive power supply pin
2/27	S1	Input/Output pins
3/26	S2	
4/25	S3	
5/24	S4	
6/23	S5	
7/22	S6	
8/21	S7	
9/20	S8	
10/19	S9	
11/18	S10	
12/17	S11	
14	CK	Clock input pin for data transfer.
15	DATA	Serial data input pin for setting switches.
16	STB	Strobe input pin for data writing.

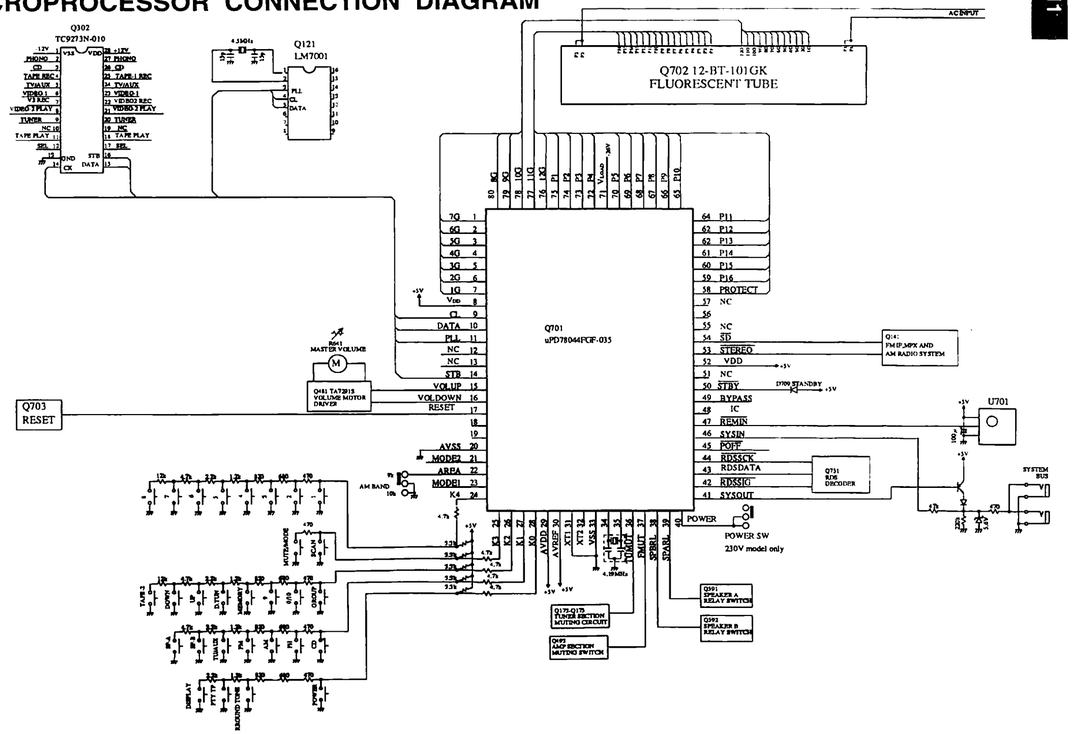
TA7291S(Volume Motor Driver)



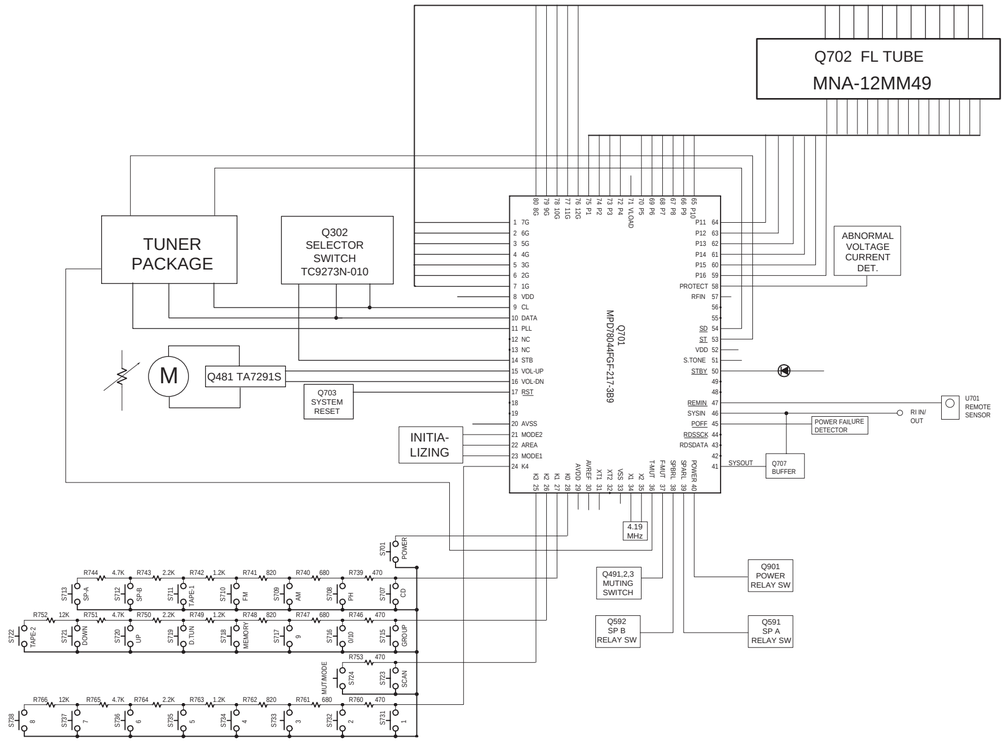
INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

CCW: Counter-clockwise direction
CW: Clockwise direction

MICROPROCESSOR CONNECTION DIAGRAM



MICROPROCESSOR-CONNECTION DIAGRAM



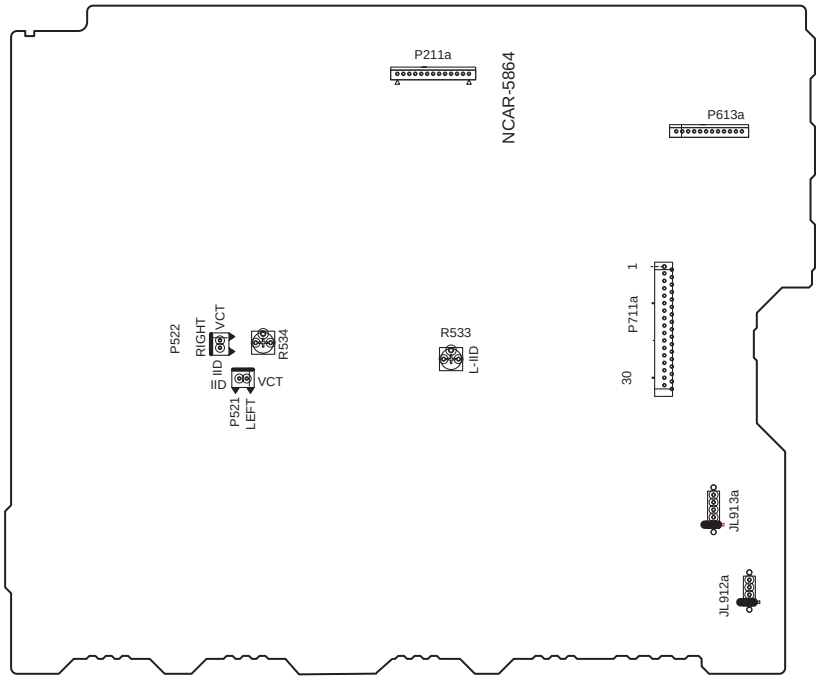
MICROPROCESSOR-TERMINAL DESCRIPTIONS

Pin No.	Function	I/O	Description
1-7	7G-1G	O	Grid control output pin
8	VDD		Power supply pin
9	CL	O	Clock output pin for selector switch and PLL IC.
10	DATA	O	Data output pin for selector switch and PLL IC.
11	PLL	O	Chip enable output pin for PLL IC.
14	STB	O	Chip enable output pin for selector switch IC.
15	VOL UP	O	Volume control output pin
16	VOL DOWN	O	Volume control output pin
17	RST	I	System reset input pin
20	AVSS		Ground pin for A/D converter
21	MODE2	I	Mode initializing pin
22	AREA	I	Band area set initializing pin
23	MADE1	I	Mode initializing pin
24-28	K4-K0	I	Operation key connection pin
29	AVDD		A/D converter power supply pin
30	AVREF		Reference voltage input pin for A/D converter
33	VSS		Ground pin
34,35	X1,X2		Main system clock pin. Connect the ceramic oscillator.
36	T-MUT	O	Muting control output pin for tuner section
37	F MUT	O	Muting control output pin for amplifier section
38	SPBRL	O	Speaker relay B control output pin
39	SPARL	O	Speaker relay A control output pin
40	POWER	O	Power relay control output pin
41	SYSOUT	O	System code output pin
45	POFF	I	Power failure detection input pin
46	SYSIN	I	System code input pin
47	REMIN	I	Remote control signal input pin
50	STBY	O	Standby indicator control pin
52	VDD		Power supply pin
53	ST	I	Stereo broadcast detection input pin
54	SD	I	Broadcast detection pin
58	PROTECT	I	Protection circuit detection pin
59-70	P18-P5	O	Segment control output pin
71	VLOAD		Pull-down resistor connection pin
72-75	P4-P1	O	Segment control output pin
76-80	12G-8G	O	Grid control output pin

ADJUSTMENT AND CONFIRMATION PROCEDURES 1

Idling current adjustment

Before Idling adjustment, turn the trimming resistors R533 and R534 to counter clockwise.
Connect the DC voltmeter to terminals P521 and P522.
After turn POWER to ON, adjust the trimming resistors R533 and R534 so that the reading of voltmeter becomes 2.0 mV.
After adjustment, attach the top cover.
Confirm the voltage of points above after about five minutes.
When less than 7.0 mV, readjust the resistors above so that the voltage becomes 7.0 mV.
When 7.0 mV to 9.0 mV, you are not necessary to adjust.
When more than 9.0 mV, readjust the resistors above so that the voltage becomes 9.0 mV.



Confirmation of protection circuit

1. Confirmation of operation of speaker relay

Confirm that the speaker relays turn ON approximate. 5 seconds after the power switch is turned ON.
Confirm that the speaker relays turn OFF immediately after the power switch is turned OFF.

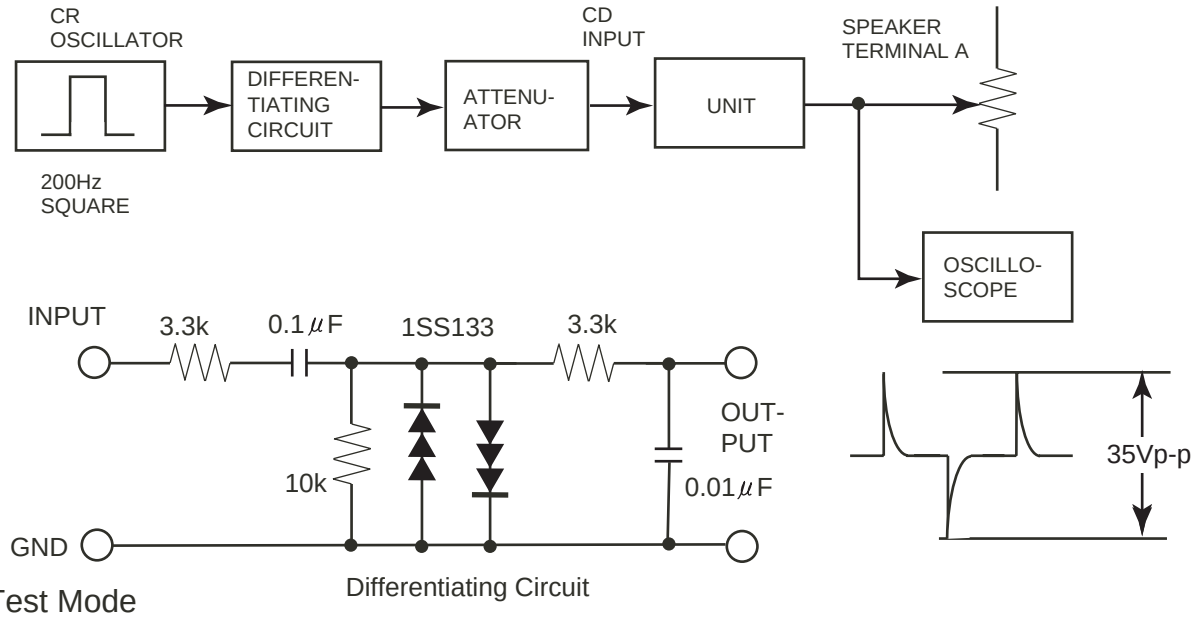
2. Confirmation of DC detection circuit

Press and hold down CD button, then press DIRECT TUNING button.
After "TEST- " on the FL tube light on, press TAPE 1 button to set the unit to "TEST-1 00".
Apply DC 1.5 to 3V to CD terminal with no load.
Confirm that the speaker relay turns OFF.
Apply DC -1.5 to -3V to CD terminal with no load.
Confirm that the speaker relay turns OFF.
Caution: Don't apply DC voltage more than 1 sec..

ADJUSTMENT AND CONFIRMATION PROCEDURES 2

3. Confirmation of Current detection circuit

Set the unit to "TEST-1 00".
Connect the differentiating circuit and apply the 200Hz square signal to CD terminal of each channel.
Adjust the attenuator or Volume so that the output level becomes 35V p-p.
Confirm that the speaker relay does not turn OFF when a 2.0 ohm load is connected.
Confirm that "Protect" indicator lights on when a 0.5 ohm load is connected.
Caution:Don't continue more than 3 seconds.

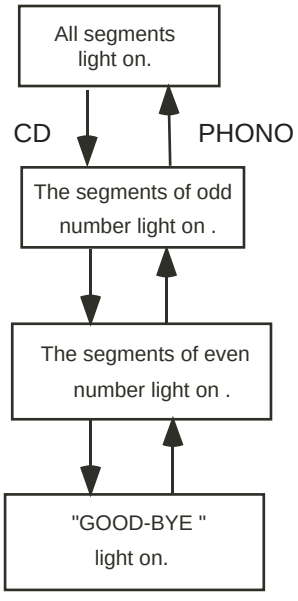


Differentiating Circuit

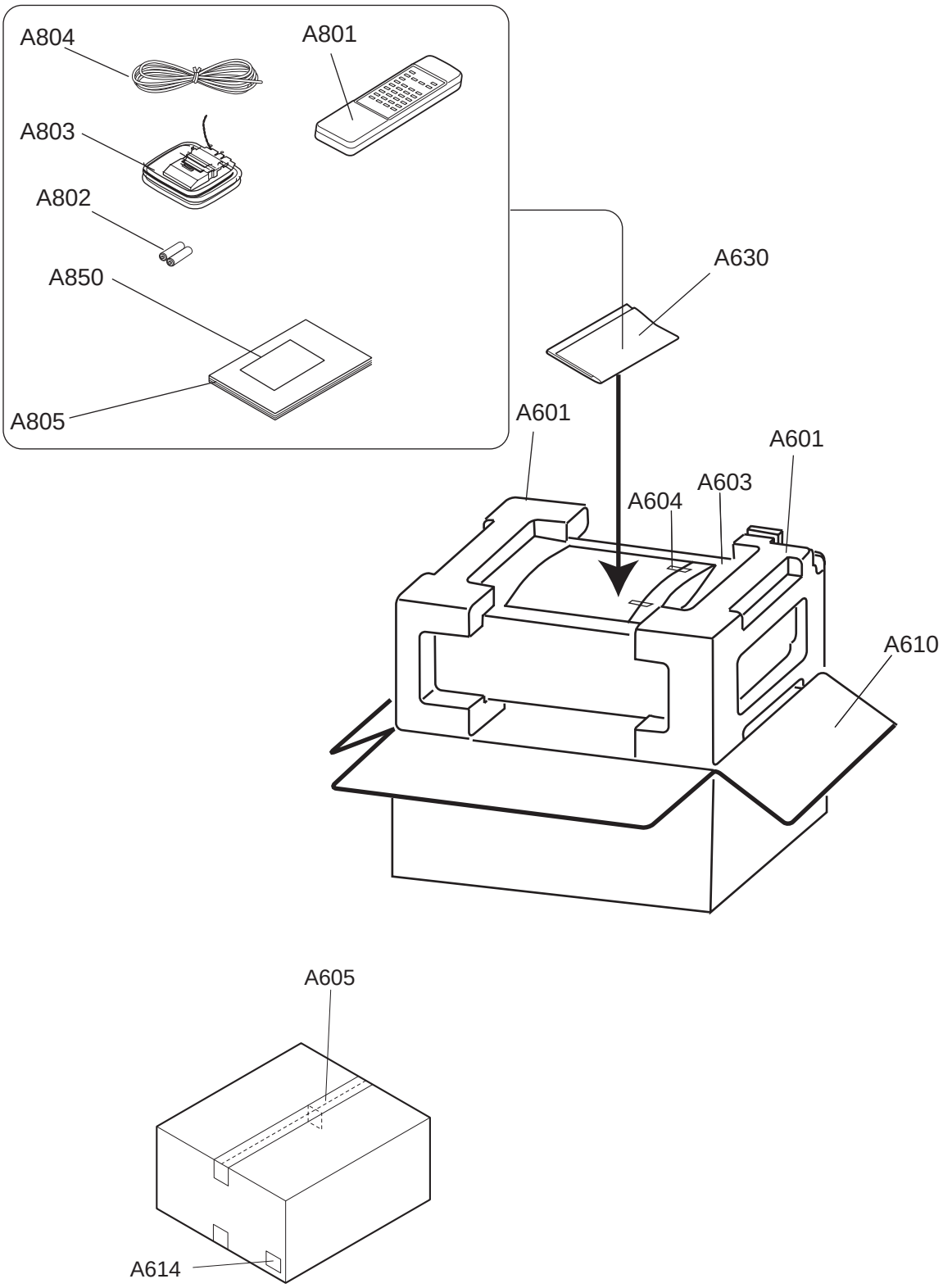
Test Mode

1. Turn POWER button on.
2. Press and hold down CD button, then press DIRECT TUNING button.
3. After "TEST-" on the FL tube is displayed, press CD button to set the unit to the test mode of FL tube.

Test mode of FL tube



PACKING VIEW



EXPLODED VIEW-PARTS LIST

NOTE: THE COMPONENTS IDENTIFIED BY MARK ! ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

REF.NO.	PART NO.		DESCRIPTION
A001	27212708		Front panel
A002	838130088		3TTB+8B,Screw
A004	28326246		Knob,function
A005	28326247		Knob,power
A006	28326248		Konb,selector
A007	28326249		Knob,tuning
A010	27141946		Retainer F
A011	838130088		3TTB+8B,Screw
A013	29110083		Tape,cloth
A015	27100321B		Chassis
A016	838430088		3TTB+8B(BC),Screw
A018	27190991		Holder
A020	27160378		Heat sink
A021	27141530A		Retainer
A023	27141672		Retainer H
A024	838130088		3TTB+8B,Screw
A026	801433		3SMS8W.SW+14B(BC),Special screw
A030	27300750	!	Bushing
A035	27190266-1 or		LSR-12R or
	27190266		KGLS-12RT,Holder
A040	838130088		3TTB+8B,Screw
A041	830440089		4TTC+8C(BC),Screw
A201	28184663-1		Top cover
A202	838430088		3TTB+8B(BC),Screw
A203	28141240		Cushion
A204	29362772		Label,cover
A205	27175319B		Leg
A206	28141494		Cushion
A207	838130088		3TTB+8B,Screw
A210	28325456		Knob,volume
A211	28325454		Knob,tone
A300	27123353		Back panel
A301	838430088		3TTB+8B(BC),Screw
A302	87643010		W3*10F(BC),Flat washer
A303	838930088		3TTB+8B(UN),Screw
A306	28192045		Clear plate
A352	28135290		Badge
E801	260208		Wire tie
F901	252163	!	4A-UL/T-237,Fuse
P102	2047150522		NCFC7-150522,Flexible cable
P711	2047311512		NCFC7-311512,Flexible cable
P901	253368LTK,	!	AS-UC-2,
	253280VOL or	!	AS-UC-2#18 or
	253279HIT	!	AS-UC-2#18,Power supply cord
Q521,Q522	2203043		2SC5197-O,Transistor
Q523,Q524	2203033		2SA1940-O,Transistor
T901	2301220	!	NPT-1283D,Power transformer

REF.NO.	PART NO.	DESCRIPTION
U1	1B042564-5A	NAAR-5864-5A,Main circuit PC board ass'y
U2	1B042565-5A	NAETC-5865-5A,Volume PC board ass'y
U3	1B042566-5A	NAETC-5866-5A,Secondary terminal PC board ass'y
U4	1B042571-1A	NADIS-8371-1A,Display circuit PC board ass'y
U5	1B042572-1A	NAPS-8372-1A,Primary circuit PC board ass'y
U6	1B042573-1A	NAETC-8373-1A,Headphone terminal PC board ass'y
U7	1B042574-1A	NAETC-8374-1A,Transofrmer terminal PC board ass'y
U8	1B042576-1A	NAETC-8376-1A,Connection PC board ass'y
U9	1B042577-1A	NAETC-8377-1A,Terminal RI PC board ass'y
U11	240146 or	FAE385-A02F or
	240134A	TFCE1U114B,Tuner unit

PACKING VIEW-PARTS LIST

REF.NO.	PART NO.	DESCRIPTION
A355	29363983	Label POP
A601	29091763A	Pad ass'y
A603	29100034-1A	850*650,Polybag
A604	29110149	Tape, cellophane
A605	29110148	Tape PP
A606	29095906	Sheet
A610	29054278A	Carton box
A614	29363934	Label UPC
A630	29100097-1A	350*250,Polybag
A801	24140330	RC-330S,Remote control
A802	3010054	R6/AA(UM-3),Two batteries
A803	232140	NMA-3057,AM loop antenna
A804	292142	FM antenna
A805	29343865	Instruction manual
A850	29365100	Warranty card

PRINTED CIRCUIT BOARD-PARTS LIST

NOTE: THE COMPONENTS IDENTIFIED BY MARK ! ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

Main circuit PC board (NAAR-5864-5A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q301	222502	NJM4558D-X
Q302	22240881	TC9273N-010
Q401,Q402	22240250	NJM2068L-D
Q481	22240239	TA7291S
Q921	222780125NEC	78M12HF(MPC78M12HF)
Q922	222790125	79M12HF
Q923	222780565JRC	78M56(NJM78M56FA)
	Transistors	
Q491,Q492	2213631	RN1241-A
Q493	2213510 or	DTA114ES or
	2214350	RN2202
Q501,Q502	2210756 or	2SC1775A-F or
Q503,Q504	2210755 or	2SC1775A-E or
	2211732 or	2SC1845-F or
	2211733	2SC1845-E
Q505,Q506	2211353	2SA949-O
Q507,Q508	2210756 or	2SC1775A-F or
Q525,Q526	2210755 or	2SC1775A-E or
Q581,Q582	2211732 or	2SC1845-F or
	2211733	2SC1845-E
Q509,Q510	2213284	2SC1740S-R
Q511,Q512	2211353	2SA949-O
Q513,Q514	2211633	2SC2229-O
Q515,Q516	2213284	2SC1740S-R
Q517,Q518	2203010	2SC5171
Q519,Q520	2203000	2SA1930
Q527,Q528	2211353	2SA949-O
Q529,Q530	2211633	2SC2229-O
Q583	2211792 or	2SA992-F or
	2215885 or	KTA1268-GR or
	2215886	KTA1268-BL
Q591,Q592	2213640	DTC123JS
Q924	2211455	2SA1015-GR
	Diodes	
D501,D502	22380260 or	RL1N4003 or
D915,D916	22380035	GP104003E
D591,D592	223163 or	1SS133 or
D923	223205	1SS270A
D911	22380271F or	D3SBA20 or
	22380022F or	RBV402 or
	22380285F	RS403M
D917,D918	22380260 or	RL1N4003 or
D919,D920	22380035	GP104003E
D921	22380260 or	RL1N4003 or
	22380035	GP104003E
D922	224472704 or	MTZJ27D or
	224852703	DZ-27BSC
	Coils	
L501,L502	231176S	S-1.3C

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C301,C302	335323315	CK45B50V-331K,Ceramic
C303,C304	354781009	CE04W50V-10M,Elect.
C305,C306	335321525	CK45B50V-152K,Ceramic
C307,C308	354721019	CE04W6.3V-100M,Elect.
C309,C310	374726224	ECQ-B50V-622J,Plastic film
C311,C312	374721824	ECQ-B50V-182J,Plastic film
C313,C314	354781009	CE04W50V-10M,Elect.
C315,C316	354781009	CE04W50V-10M,Elect.
C341,C342	374722235	ECQ-B50V-223K,Plastic film
C345	374722235	ECQ-B50V-223K,Plastic film
C401,C402	354781009	CE04W50V-10M,Elect.
C405,C406	345343304	CC45CH50V-330J,Ceramic
C407,C408	354781009	CE04W50V-10M,Elect.
C411,C412	354781009	CE04W50V-10M,Elect.
C413,C414	374721044	ECQ-V50V-104J,Plastic film
C415,C416	374721044	ECQ-V50V-104J,Plastic film
C417,C418	374721024	ECQ-B50V-102J,Plastic film
C419,C420	374721024	ECQ-B50V-102J,Plastic film
C421,C422	374721534	ECQ-B50V-153J,Plastic film
C423,C424	335622230	CK45F50V-223Z,Ceramic
C425,C426	335622230	CK45F50V-223Z,Ceramic
C433,C434	374721534	ECQ-B50V-153J,Plastic film
C435,C436	374721015	ECQ-B50V-101K,Plastic film
C441	354721019	CE04W6.3V-100M,Elect.
C443	352980226	NP04D50V-2.2M,Elect.
C501,C502	354784709	CE04W50V-47M,Elect.
C503,C504	374721015	ECQ-B50V-101K,Plastic film
C507,C508	354724719	CE04W6.3V-470M,Elect.
C509,C510	345340201	CC45CH50V-020C,Ceramic
C513,C514	354722219	CE04W6.3V-220M,Elect.
C515,C516	394684717 or	CE04W50V-470M(VR) or
	354784719S	CE04W50V-470M,Elect.
C519,C520	335321025	CK45B50V-102K,Ceramic
C521,C522	354784709	CE04W50V-47M,Elect. Capacitor
C529,C530	374721044	ECQ-V50V-104J,Plastic film
C537,C538	335622230	CK45F50V-223Z,Ceramic
C581	354721019	CE04W6.3V-100M,Elect.
C582,C583	335622230	CK45F50V-223Z,Ceramic
C595,C596	335321515	CK45B50V-151K,Ceramic
C911	374733344	ECQ-V100-334J,Plastic film
C915,C916	3504407 or	CE69W50V-6800M or
	3504207	CE04W50V-6800M,Elect.
C918	394661027 or	CE04W35V-1000M(VR) or
	354761029	CE04W35V-1000M,Elect.
C919	394663317 or	CE04W35V-330M(VR) or
	354763319	CE04W35V-330M,Elect.
C920,C921	335622230	CK45F50V-223Z,Ceramic
C922,C923	354781009	CE04W50V-10M,Elect.
C926	354761019	CE04W35V-100M,Elect.
C927	335622230	CK45F50V-223Z,Ceramic
C928	354781019	CE04W50V-100M,Elect.
C930,C931	335622230	CK45F50V-223Z,Ceramic
C932	354781009	CE04W50V-10M,Elect.
C971	335622230	CK45F50V-223Z,Ceramic
C983	374721034	ECQ-B50V-103J,Plastic film

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors	
R301,R302	417341024	R16J-1K,Carbon
R303,R304	417345634	R16J-56K,Carbon
R305,R306	417342244	R16J-220K,Carbon
R307,R308	417341024	R16J-1K,Carbon
R309,R310	417343944	R16J-390K,Carbon
R311,R312	417343934	R16J-39K,Carbon
R313,R314	417341044	R16J-100K,Carbon
R315,R316	417343314	R16J-330,Carbon
R317,R318	417341054	R16J-1M,Carbon
R319,R320	417342224	R16J-2.2K,carbon
R321,R322	417341054	R16J-1M,Carbon
R323,R324	417343314	R16J-330,Carbon
R325,R326	417341054	R16J-1M,Carbon
R327,R328	417342224	R16J-2.2K,carbon
R329,R330	417341054	R16J-1M,Carbon
R331,R332	417343314	R16J-330,Carbon
R333,R334	417341054	R16J-1M,Carbon
R349,R350	417342234	R16J-22K,Carbon
R351,R352	417341034	R16J-10K,Carbon
R353,R354	417341244	R16J-120K,Carbon
R391,R392	417341024	R16J-1K,Carbon
R393	5104288	N11RLC250KWT20Z
R401,R402	417341014	R16J-100,Carbon
R403,R404	417348234	R16J-82K,Carbon
R405,R406	417346834	R16J-68K,Carbon
R407,R408	417343324	R16J-3.3K,Carbon
R409	5104356	N14RLC100KWT20Z
R411,R412	417341224	R16J-1.2K,Carbon
R413,R414	417341044	R16J-100K,Carbon
R415	5104356	N14RLC100KWT20Z
R417,R418	417341024	R16J-1K,Carbon
R419,R420	417341034	R16J-10K,Carbon
R429,R430	417341034	R16J-10K,Carbon
R431,R432	417344724	R16J-4.7K,Carbon
R435	417342244	R16J-220K,Carbon
R436	417342224	R16J-2.2K,carbon
R501,R502	417344714	R16J-470,Carbon
R503,R504	417345634	R16J-56K,Carbon
R505,R506	417344714	R16J-470,Carbon
R507,R508	417341224	R16J-1.2K,Carbon
R509,R510	417345634	R16J-56K,Carbon
R511,R512	443525604	RS1/2WBJ-56,Metal oxide
R513,R514	417341024	R16J-1K,Carbon
R515,R516	417341024	R16J-1K,Carbon
R517,R518	417341834	R16J-18K,Carbon
R519,R520	417341834	R16J-18K,Carbon
R521,R522	417341034	R16J-10K,Carbon
R523,R524	417342714	R16J-270,Carbon
R525,R526	417344734	R16J-47K,Carbon
R527,R528	417341034	R16J-10K,Carbon
R529,R530	443526804	RS1/2WBJ-68,Metal oxide
R531,R532	443526804	RS1/2WBJ-68,Metal oxide
R533,R534	5210259	N06HR2KBC,Trimming
R535,R536	417343924	R16J-3.9K,Carbon

R537,R538	417342224	R16J-2.2K,carbon
R539,R540	443526804	RS1/2WBJ-68,Metal oxide
R541,R542	443525604	RS1/2WBJ-56,Metal oxide
CIRCUIT NO.	**PART NO.**	**DESCRIPTION**
	Resistors	
R545,R546	4800071 or	RSS2WK-0.22 or
	4000131	RGC22-0.22 OHMK,Metal plate
R547,R548	417342204	R16J-22,Carbon
R549,R550	417342204	R16J-22,Carbon
R551,R552	453630824	RNU1WCJ-8.2,Metal
R553,R554	417343324	R16J-3.3K,Carbon
R555,R556	417344714	R16J-470,Carbon
R557,R558	417343334	R16J-33K,Carbon
R559,R560	417344734	R16J-47K,Carbon
R563,R564	453530224	RNU1/2WCJ-2.2,Metal
R565,R566	443623914	RS1WBJ-390,Metal oxide
R571	417343334	R16J-33K,Carbon
R572	417342234	R16J-22K,Carbon
R573,R575	417341034	R16J-10K,Carbon
R574	417344734	R16J-47K,Carbon
R581,R582	443628204	RS1WBJ-82,Metal oxide
R583,R584	453530224	RNU1/2WCJ-2.2,Metal
R585,R586	453530224	RNU1/2WCJ-2.2,Metal
R931	417343324	R16J-3.3K,Carbon
R932	417343344	R16J-330K,Carbon
	Relays	
RL591	25065618 or	NRL-2P5A-DC24-158 or
RL592	25065563	NRL-2P5A-DC24-129
	Terminals	
P301,P302	25045779 or	NPJ-6PDWWWRRR561 or
	25045300	NPJ-6PDBL159
P501	25060158-1	NTM-8PDML084
	Sockets	
JL912a	25051108	NSCT-4P895
JL913a	25051109	NSCT-5P896
P101	25051238	NSCT-13P1028
P711b	25051875 or	NSCT-31P1662 or
	25051335	NSCT-31P1124
	Plugs	
P211a	25055709	NPLG-13P665
P521,P522	25055038	NPLG-2P29
P613a	25055706	NPLG-10P662
	Heat sinks	
D911a	27160166	
Q921a	27160209	RAD-67
	Holder	
Q702a	27190989B	(FL)
	Screws	
D911b,Q921b	838430107	3TTB+10S(BC)

Volume PC board (NAETC-5865-5A)

CIRCUIT NO.	**PART NO.**	**DESCRIPTION**
C648	335622230	CK45F50V-223Z,Ceramic capacitor
R641	5104334	N16RGL100KBT25F,Variable resistor
R643,R644	417348224	R16J-8.2K,Carbon resistor
P613b	25051235	NSCT-10P1025,Socket

Secondary terminal PC board (NAETC-5866-5A)

CIRCUIT NO.	PART NO.	DESCRIPTION
R921,R922	453530104	RNU1/2WCJ-1,Metal resistor
JL912b	25051108	NSCT-4P895,Socket
JL913b	25051109	NSCT-5P896,Socket

Display circuit PC board (NADIS-8371-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	FL tube	
Q702	212254 or	HNA-12MM49 or
	212157	12-BT-102GK
	Sensor	
U701	241337	PIC-37043TE2,Remote control
	IC	
Q701	22242151R3	MPD78044FGF-217-3B9
	Transistors	
Q703	221282	DTC144ES
Q705,Q706	2213284	2SC1740S-R
Q707	2213510	DTA114ES
	Diodes	
D701,D702	223163 or	1SS133 or
D704,D705	223205 or	1SS270A or
D708,D710	223273	1N4148M
D703	224470913 or	MTZJ9.1C or
	224850913	DZ-9.1BSC
D706,D707	224470562 or	MTZJ5.6B or
	224850562	DZ-5.6BSB
D709	225431or	SLR-56VRTB7 or
	225290	SEL4110R
D711,D712	223163 or	1SS133 or
D720,D721	223205 or	1SS270A or
D722,D723	223273	1N4148M
	Oscillator	
X701	3010163	CST4.19MGW
	Coils	
L701,L702	233454K220	NCH-1452 220K
L703	233454K220	NCH-1452 220K
L704,L705	233454M022	NCH-1452 022M
L706	233454M022	NCH-1452 022M
	Capacitors	
C575,C576	335321025	CK45B50V-102K,Ceramic
C701	3000076 or	EECS5R5T104 or
	3000078	DX-5R5L104
C702	375524744 or	MMT50V-474J or
	374724744	ECQ-V50V-474J,Plastic film
C703	353721019	CE04W6.3V-100M(S),Elect.
C704	353780109	CE04W50V-1M(S),Elect.
C705	335621030	CK45F50V-103Z,Ceramic
C706,C707	353781009	CE04W50V-10M(S),Elect.
C708	335324715	CK45B50V-471K,Ceramic
C709,C711	353721019	CE04W6.3V-100M(S),Elect.
C712,C713	335324715	CK45B50V-471K,Ceramic
C714,C715	335324715	CK45B50V-471K,Ceramic
C716	335324715	CK45B50V-471K,Ceramic
C717	335321015	CK45B50V-101K,Ceramic
C724	335621030	CK45F50V-103Z,Ceramic
C750	335321025	CK45B50V-102K,Ceramic
	Resistors	
R701	417341014	R16J-100,Carbon
R702	417344734	R16J-47K,Carbon

R703,R704	417341014	R16J-100,Carbon
R706,R707	417341044	R16J-100K,Carbon
R709	417341034	R16J-10K,Carbon
R710,R739	417344714	R16J-470,Carbon
R711,R717	417344734	R16J-47K,Carbon
CIRCUIT NO.	**PART NO.**	**DESCRIPTION**
	Resistors	
R712	417342714	R16J-270,Carbon
R714,R715	417341034	R16J-10K,Carbon
R718,R719	417343324	R16J-3.3K,Carbon
R720,R721	417343324	R16J-3.3K,Carbon
R722	417343324	R16J-3.3K,Carbon
R724,R779	417341034	R16J-10K,Carbon
R726,R755	417341004	R16J-10,Carbon
R729,R730	417344724	R16J-4.7K,Carbon
R731,R732	417344724	R16J-4.7K,Carbon
R733,R744	417344724	R16J-4.7K,Carbon
R740,R747	417346814	R16J-680,Carbon
R741,R748	417348214	R16J-820,Carbon
R742,R749	417341224	R16J-1.2K,Carbon
R743,R750	417342224	R16J-2.2K,carbon
R746,R753	417344714	R16J-470,Carbon
R751,R765	417344724	R16J-4.7K,Carbon
R752,R766	417341234	R16J-12K,Carbon
R756,R758	417341024	R16J-1K,Carbon
R759,R767	417341024	R16J-1K,Carbon
R760	417344714	R16J-470,Carbon
R761	417346814	R16J-680,Carbon
R762	417348214	R16J-820,Carbon
R763	417341224	R16J-1.2K,Carbon
R764,R777	417342224	R16J-2.2K,carbon
R768,R769	417341024	R16J-1K,Carbon
R772,R773	417341024	R16J-1K,Carbon
R774,R778	417341024	R16J-1K,Carbon
R781,R782	417341024	R16J-1K,Carbon
R785	417342244	R16J-220K,Carbon
R789,R790	417341024	R16J-1K,Carbon
R791	417341024	R16J-1K,Carbon
	Switches	
S701,S707	25035714 or	NPS-111-S677 or
S708,S709	25035718	NPS-111-S681
S710,S711	25035714 or	NPS-111-S677 or
S712,S713	25035718	NPS-111-S681
S715,S716	25035714 or	NPS-111-S677 or
S717,S718	25035718	NPS-111-S681
S719,S720	25035714 or	NPS-111-S677 or
S721,S722	25035718	NPS-111-S681
S723,S724	25035714 or	NPS-111-S677 or
S731,S732	25035718	NPS-111-S681
S733,S734	25035714 or	NPS-111-S677 or
S735,S736	25035718	NPS-111-S681
S737,S738	25035714 or	NPS-111-S677 or
	25035718	NPS-111-S681
	Sockets	
JL711a	25051090	NSCT-6P877
P711a	25051838 or	NSCT-31P1625 or
	25051297	NSCT-31P1086

Primary circuit PC board (NAPS-8372-1A)

CIRCUIT NO.	PART NO.		DESCRIPTION
	Transistor		
Q951	2213284		2SC1740S-R
	Transformer		
T902	2300670A	!	NPT-1111D,Power
CIRCUIT NO.	**PART NO.**		**DESCRIPTION**
	Diodes		
D951,D952	22380260 or		RL1N4003 or
D953,D954	22380035		GP104003E
D955	223163 or		1SS133 or
	223205 or		1SS270A or
	223273		1N4148M
	Capacitors		
C901	3300055	!	DE1610F103M-KH
C951	335621030		CK45F50V-103Z,Ceramic
C952	354742219		CE04W16V-220M,Elect.
C953	335622230		CK45F50V-223Z,Ceramic
	Resistors		
R901	4000206 or	!	RD1/2SPH-3.3M or
	431533355	!	RC1/2GFKUL-3.3M,Solid
R951	453530824		RNU1/2WCJ-8.2,Metal
	Relay		
RL901	25065561	!	NRL-1P5A-DC12-127
	AC outlet		
P902	25053030 or	!	AC-181-UL-11V or
	25051571	!	NSCT-2P1358
	Fuse holders		
F901A,F901B	25052133	!	NSCT-1P2031
	Socket		
JL961a	25051088		NSCT-4P875
	Plug		
P901a	25055675	!	NPLG-2P631

Headphone terminal PC board (NAETC-8373-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P503	25045255	YKB26-5009,Jack

Connection PC board (NAETC-8376-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Diode	
D101	224470512 or	MTZJ5.1B or
	224850512	DZ-5.1BSB,Diode
	Capacitors	
C101	354780339	CE04W50V-3.3M,Elect.
C102	354721019	CE04W6.3V-100M,Elect.
C103	335321015	CK45B50V-101K,Ceramic
	Resistors	
R101,R102	417342234	R16J-22K,Carbon
R103	443525614	RS1/2WBJ-560,Metal oxide
R104	417341044	R16J-100K,Carbon
	Socket	
P102	25052211 or	NSCT-15P2108 or
	25052024	NSCT-15P1811

Terminal RI PC board (NAETC-8377-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
R961	417344714	R16J-470,Carbon resistor

P961	25045481 or	NPJ-2PDBL299 or
	25045330	NPJ-2PDBL184,Terminal
JL961b	25051088	NSCT-4P875,Socket
JL711b	25055627	NPLG-6P589,Plug

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